THE IRON TRADE REVIEW

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FRISCO'S NEEDS

ARE MUCH DISCUSSED IN THE TRADE.

Requirements Will Not Be As Large As Reported.—Pig Iron Stronger, But Some Low Quotations Are Made.—Many Orders For Bridges.

The probable demand for structural material which will result from the earthquake and fire at San Francisco has been the leading topic of discussion in the trade during the past week. While the wonderful courage, public spirit and home devotion of the people of the stricken city are counted upon to cause an early beginning and rapid progress in rebuilding, it is extremely difficult to foretell what the requirements will be. Very few of the large skyscrapers require more than 3,000 to 4,000 tons of structural steel, and many buildings could be erected without involving a tonnage very large in comparison with the product of the country. It is recalled that the business following the Baltimore fire was distinctly disappointing, although the buying resulting from that disaster has not yet ended. The steel corporation has decided to give preference as far as possible to orders from San Francisco, and other companies will doubtless follow this policy so as to expedite the furnishing of material and prevent the necessity of calling on foreign plants to help in this emergency. Manufacturers will oppose the admission of structural material for use in San Francisco free of duty. Accurate testimony concerning the effects of the fire and earthquake on buildings of steel construction is lacking, but all the information obtainable furnishes strong evidence of the superiority of these buildings, which apparently withstood the shocks without great damage and suffered less severely than other buildings from the fire.

Pig Iron Improving. Reports from nearly all centers indicate more activity in the pig iron market. This is particularly true in New York, where, however, buyers show a disposition to be conservative about placing orders for delivery during the second half of the year. One more furnace has been banked in Pennsylvania on account of the strike of the anthracite miners, and it is expected that others will soon be compelled to do likewise. In the south there is an increased tendency to adhere to $14 as the minimum price for No. 2 foundry, Birmingham, although $13.75 can still be done on desirable business. The lowest prices for northern irons are apparently being made by Ohio furnaces, some of which have sold as low as $16 at the plants.

Heavy Buying of Steel Bars. During the period in which the concession of $2 per ton was allowed to implement manufacturers on steel bars, it is estimated that about 200,000 tons were sold. The granting of this concession has caused some dissatisfaction among buyers who were not included in the offer. Bar iron and steel bars are now very nearly the same price, $30 Pittsburg.

Many Building Operations. The demand for structural material is stronger. A number of railroads have placed large sized orders for bridges and a heavy buying movement for new buildings in New York is expected at an early date. Inquiries are now pending for 25,000 steel cars which will require a very large tonnage of plates. Boiler makers and other smaller consumers of plates are buying in increased quantities. The sheet market shows improvement in most places, and reports of shading of quotations are not confirmed. The tin plate market also shows improvement. Specifications of wire products are very heavy, and while new business is not strong in some centers, it is heavier than usual at this time of the year. The demand for merchant pipe is satisfactory, and the requirements in the rebuilding of San Francisco are expected to be heavy.

Crude Steel Still Scarce. The demand for crude steel is greater than the supply. Forging billets are very scarce and quoted at $35 Chicago. Wire rods are very difficult to obtain. The scarcity of sheet bars has necessitated the closing of several plants of the American Sheet & Tin Plate Co.

Coke and Old Material. Old material shows some little improvement in the east, but it is still stagnant in the central west. Coke is firm with increased demand from furnaces which are usually consumers of anthracite coal. The demand for furnace coke is considerably stronger than for foundry.

Indications of Prosperity. The quarterly report of the steel corporation reflects the very prosperous condition of business during the period which it covers. Other evidences of prosperity are not lacking, and in many places extensive plans for new construction are being considered. The increase of open-hearth capacity in the Pittsburg district will be large.

OPPOSE TARIFF SUSPENSION.

(Special Telegram.)

Pittsburg, April 25.—Manufacturers in this district have entered their opposition to the suggestion that for the benefit of San Francisco the tariff on foreign structural steel products be suspended until the crisis is past. The manufacturers say that the domestic mills will be able to amply supply the needs of the stricken city, inasmuch as it will be several months before the demand will be urgent.

The Tennessee Coal, Iron & Railroad Co. announces that its office is now located at 841 Trinity building, New York, instead of Hanover Bank building, 5 Nassau street.

THE WEEK IN IRON CENTERS.

PITTSBURG.

Arranging to Rebuild San Francisco.—Pig Iron Market Stronger.

OFFICE OF *The Iron Trade Review*,
521 PARK BUILDING, April 25.

The most noteworthy feature of the week in this district has been the announcement by the Carnegie Steel Co., that all material for the relief of stricken San Francisco will be given first preference and its agents throughout the country have been notified that orders for material to be used in the affected district will be treated as emergency business. This action on the part of the steel corporation is taken in view of the great destruction of property at San Francisco and vicinity, amounting to a real calamity that will affect practically all the business interests of the country and for this reason the corporation considers it only proper that orders from this district should be rushed through as fast as possible. A special representative of the Carnegie Steel Co., has left Pittsburg to facilitate the placing of this new business for the reconstruction of San Francisco. The fact that the steel structures of that city withstood the earthquake shock while wooden, stone and brick structures collapsed is the point upon which makers of structural material and engineers base their prediction of enormous business for reconstruction work. All of the big corporations with representatives at San Francisco have heard from them and offices will be re-established as quickly as possible. The National Tube Co., has already located in Oakland.

Without anything definite or settled upon which to base their opinions, there has been a little fear that conditions in this district are not as good as has been thought, but the large companies say that the public has been unduly exercised over probable future conditions for which there has been no reason. One particular instance cited is that of bar iron, which is now quoted about $10 per ton lower than the last January prices. The explanation offered for this is that the bar iron makers at the beginning of the year raised their prices until the 2.05c base was quoted for Pittsburg delivery in the hope that makers of steel bars would follow, but when this was not done the bar iron prices naturally settled down to nearly where they belong.

A heavy building movement is expected in New York within a short time and it is estimated that 100,000 tons of structural material will be required for projects upon which bids will soon be asked. Unsettled labor conditions have held this business back, but now that this trouble is practically over, a revival is expected from that quarter.

New open-hearth capacity is being figured on by several of the steel making concerns. The corporation is now building 10 open-hearth furnaces at Homestead and while nothing definite has been decided upon, the Jones & Laughlin Steel Co., is considering the erection of additional Talbot open-hearth furnaces. The new open-hearth furnaces of the Colonial Steel Co. and Follansbee Bros., will be ready within a short time and the new furnace of the American Sheet & Tin Plate Co., at Vandergrift is under way.

The report that several of the large railroads, notably the Pennsylvania company, would on future rail contracts specify open-hearth rails for straight track and nickel steel for curves is not official, an officer of that company saying it had been considered but not decided. It is expected, however, that this railroad in future orders will specify that its rails be rolled colder than is done at present.

Pig Iron.—The pig iron market is stronger than it was last week, this being particularly true of northern foundry grades. No. 2 northern, is now quoted generally at $17 valley furnace, although on a desirable order $16.75 could be done. The low prices made on northern foundry by valley furnaces to the Cleveland district do not apply to the Pittsburg district. Bessemer pig iron for delivery before the first half is scarce and furnaces are behind on deliveries. No quotations less than $17.50 have been made. On basic pig iron the market is strong at $17 to $17.25 and northern gray forge is held at about $16.60, delivered Pittsburg. Southern pig iron quotations are firm at $12, Birmingham on forge iron and $14 for No. 2 foundry. No sales of any large tonnage have been reported aside from 2,000 tons of forge at the price quoted. There are several inquiries out, but the business has not been closed. We quote:

Bessemer Valley	$17.50
Bessemer, Pittsburg	18.35
No. 1 Foundry, Pittsburg	18.00 to 18.12
No. 2 Foundry, Pittsburg	17.60 to 17.85
Gray Forge, Pittsburg	16.50 to 16.75
Basic, Valley	17.00 to 17.20
Basic, Pittsburg	17.85 to 18.56

Ferro-Manganese.—For prompt shipment from the Atlantic seaboard ferromanganese, foreign, 80 per cent, is quoted $115 to $120 and for May and June delivery $105 to $110. For last half guaranteed delivery $85 to $90 is quoted.

Steel Billets.—The nominal market is between $27 and $27.50 with comparatively few to be obtained at that price. One large interest with 700 tons to sell offered Bessemer billets, 4 by 4 at $26, but has no more at that price. Sheet bars are still very scarce and are being held at $28. On account of the scarcity of sheet bars several mills of the American Sheet & Tin Plate Co., have been shut down.

Skelp.—Skelp has been very inactive for several weeks past, and we quote nominally as follows:

Bessemer grooved, 1.65c to 1.70c; sheared, 1.70c to 1.75c; basic, grooved, 1.65c to 1.70c; sheared, 1.70c to 1.75c; iron skelp, grooved, 1.65c to 1.70c; sheared, 1.80c to 1.85c.

Hoops and Bands.—New business is light, but mills are busy on old contracts, and specifications against these are heavy. We quote: Hoops, 1.90c in carload lots, and 2c on less than carload lots, bands, 1.50c base, half extras as per standard steel card. Prices f. o. b. Pittsburg.

Cotton Ties.—Although the active business in cotton ties was over after the first week the market opened, all of the business is not yet placed and orders are coming in slowly. The price is 85c per bundle.

Muck Bar.—There is one very large inquiry pending for muck bar, but consumers are pretty well covered for some time ahead and but little buying is being done at present. For all pig metal muck bar we quote $29.50, and for scrap muck bar nominally $27.50.

Structural Material.—While it is now too early to expect business for the re-construction of San Francisco an enormous tonnage is expected from that affected district in the next two or three months, after the debris has been cleared away. The adjustment of insurance will also be an important factor. The Carnegie Steel Co. has announced that business from that district will be given preference and treated as emergency work in order to facilitate the rebuilding of the city. Now that labor troubles with the structural iron workers are practically over big business is expected from New York. We quote:

Beams and channels, 15 in., and under, 1.70c; over 15 in., 1.80c; zees, 1.70c; tees, 1.75c; angles from 3 to 6 inches, inclusive, 1.70c; over six inches, 1.80c; universal and sheared plates, 6¼ inches and wider, 1.60c base.

Plates.—There is a very heavy demand for plates for railway cars and there are inquiries in the market at this time for approximately 25,000 new steel

cars, although car builders are practically full to capacity for the remainder of the year and any business placed now would of necessity be for next year's delivery. On other plates the new business has been light and a majority of the mills are actually looking for business, which so far has been enough to keep mills running as it were, from hand to mouth. The lake shipyards have placed their business ahead for boats that will not be ready until next year. Notwithstanding this condition we have been unable to discover any shading in prices, and we quote as follows:

Tank plate ¼ inch thick, 6¼ to 100 inches, 1.60c f. o. b. mill, Pittsburg. Extras are as follows per 100 pounds, boiler and flange steel plates, .10c; A. B. M. A. and ordinary firebox steel plates, .20c; still bottom steel, .30c; marine steel, .40c; locomotive firebox steel, .50c; all sketches excepting straight taper plates, varying not more than 4 inches in width at ends, narrowest end not being less than 30 inches, .10c; complete circles, .20c. Plates in width over 100 inches up to 110 inches, .05c; over 110 inches up to 115 inches, .10c; over 115 inches up to 120 inches, .15c; over 120 inches up to 125 inches, .25c; over 125 inches, up to 130 inches, .50c; over 130 inches, 1.00c. Gauges under ¼ inch to and including 3-16 inch plates on thin edges, .10c; under 3-16 inch to and including No. 8, .15c; under No. 8 to and including No. 9, .25c. Five cents extra for less than carloads. Terms net cash in 30 days.

Merchant Bars.—There has been considerable action of common iron bars during the past week, although not to the extent of the previous week. The price made by the leading interest is 1.50c Pittsburg, for shipment outside of Pittsburg, while for this market common iron bars are being quoted 1.55c to 1.60c. We quote:

Common iron bars, 1.55c to 1.60c Pittsburg in carloads, 1.65c in less than carloads; for western shipment 1.50c base Pittsburg; Bessemer steel bars, 1.50c; open-hearth steel bars, 1.50c; plow and cultivator, 1.50c net; channels, angles, zees and tees, under 3 inches, 1.60c, all f. o. b. Pittsburg. The following differentials are maintained on steel: Less than 2,000 pounds .10c advance; less than 1,000 pounds, of a size, .30c advance.

Wire and Wire Nails.—The demand for wire nails is particularly heavy, but in other branches of the trade there has been no special feature developed. On barb wire orders can be filled within two weeks. Business is good with the mills and specifications are heavy against old contracts, but new business has not been out of the ordinary. From the manner in which jobbers are urging deliveries it is taken that jobbers' stocks are very light, in some cases they have ordered as often as three times within a week. Prices are unchanged and we quote as follows:

Wire nails, jobbers' carload lots, $1.85; retailers' carload lots, $1.90, and less than carload lots, $2; painted barb wire, $2 for jobbers in carloads; retailers in carloads, $2.05, and less than carloads, $2.15, with 30c for galvanizing; plain wire $1.70 to jobbers and $1.75 by carload.

Merchant Pipe.—On account of the very low prices being made on inquiries there is not a very keen competition for the smaller sizes of merchant pipe, as mills do not care to take on any great amount of business at the prevailing quotations. An extreme discount of 81 is made to the large trade. A heavy demand is expected from San Francisco to be used in the reconstruction of that city and every effort will be made by manufacturers to accommodate this particular market to relieve the situation there. While several line pipe propositions have been pending for some time past, we have not learned of any of them being closed. We quote pipe, consumers' carloads, with jobbers' carloads one point higher discount:

	Steel		Iron	
Consumer's Carloads	Black	Galv.	Black	Galv.
⅛ and ¼ inch	71	55	67¼	51¼
⅜ inch	73	59	69¼	55¼
½ inch	75	63	71¼	59¼
¾ to 6 inches	79	69	76	66
7 to 12 inches	74	59	71	55¼
EXTRA STRONG PLAIN ENDS.				
⅛ to ⅜ inch	64	52	60½	48½
½ to 4 inches	71	59	67½	56½
4½ to 8 inches	67	55	63½	51½
Double extra strong plain ends, ⅛ to 8 inches	60	49	56½	45½

Boiler Tubes.—Locomotive boiler tubes are very active, as has been the case for several months back, but in other lines business is only ordinary. On merchant boiler tubes, 22 feet and under, consumers' carloads we quote as follows:

	Steel	Iron
1 to 1¼ inches	46	41
1¼ to 2¼ inches	58	41
2½ inches	60	46
2¾ to 5 inches	66	53
6 to 13 inches	58	41

Less than carload lots two points less.
2½ inches and smaller, over 18 feet, 10 per cent net extra.
2¾ inches and larger, over 22 feet, 10 per cent net extra.

Sheets.—The sheet market is in good condition and while an occasional report is heard to the effect that the official prices are being shaded, a careful investigation of the report has resulted in finding no verification and we are inclined to believe the report was founded on nothing better than a suspicion. Independent mills are busy and have plenty of business on the books. Specifications are coming in very freely and the leading interest, for one, is behind on deliveries. The scarcity of sheet bars has made it necessary to shut down several of the mills and there is no immediate prospect of an improvement in this particular. We quote:

Black steel sheets, box annealed, cold rolled, one pass: Nos. 11-12, 2c; Nos. 13-14, 2.05c; Nos. 15-16, 2.10c; Nos. 17-21, 2.15c; Nos. 22-24, 2.20c; Nos. 25-26, 2.25c; No. 27, 2.30c; No. 28, 2.40c. Galvanized, Nos. 10-11, 2.35c; Nos. 12-14, 2.45c; Nos. 15-16, 2.55c; Nos. 17-21, 2.70c; Nos. 22-24, 2.85c; Nos. 25-26, 3.05c; No. 27, 3.25c; No. 28, 3.45c. Corrugated roofings, 1.70c per square for No. 28 painted, 2½-inch corrugation; 3.05c per square for No. 28 galvanized, 2½-inch corrugation. Quotations f. o. b. Pittsburg on large lots.

Tin Plate.—There has been an improvement during the past ten days and specifications against contracts placed before the recent advance are heavy and in several instances are taxing the capacity of mills at this particular time when, on account of the scarcity of sheet bars mills are not running full. Despite the complaint on the part of independent tin plate makers on account of the high price and scarcity of sheet bars, we have heard of none of them shutting down for this reason.

We quote: $3.60 per base box, f. o. b. Pittsburg, 14 x 20 100-pound cokes, terms 30 days, less two per cent off for cash in ten days.

Merchant Steel.—The smaller sizes of steel bars have not been active and but little new business has been placed, but in the larger sizes the demand has been very heavy and mills are behind in deliveries. While the implement manufactures have placed a considerable lot of their business at a modification of the market price, there is still much of this yet to be placed, as the year does not begin until July 1 and there are still two months in which to close on this business. We quote:

Cold rolled and ground shafting, 50 per cent off in carload lots, and 45 off in less than carloads, delivered in base territory; tire steel, 1.70c to 1.80c; open-hearth spring steel, 2.25c to 2.50c; sleigh shoe flat, 1.50c to 1.55c; smooth finished machinery steel, 1.90c to 2c; toe calk, 2.05c to 2.10c. The price of planished and machine straightened tire is 1.70c base half extras as below. Iron finished tire up to 1½ inch by ½ inch 1.65c base half extra tire list. Iron finished tire 1½ inch by ½ inch and over to be sold on regular bar basis of 1.50c base, half extra steel card.

Rails and Track Material.—The mills

in this territory have done but very little new business during the week under review. The leading interest is taking care of its light rail customers and making good deliveries on this business, but is devoting all possible energies toward filling its orders on heavy sections. The report that several of the big railroads were considering the proposition of demanding open-hearth material on future business is not strictly true, although a large amount of open-hearth rail business has been placed. The report which gained considerable circulation was that the railroads would ask for open-hearth rails for straight roadways and nickel steel for curves. We quote:

Fifty pounds and heavier, 500-ton lots and over, $28; carloads and less than 500 tons, $30; less than carload lots, $32; light rails, 16 pounds, $30; 20 pounds, $28.50 to $29; 25 to 45 pounds, $29; angle bars for standard sections, 1.50c; spikes, $2.05 to $2.10.

Old Material.—The scrap market continues to be discouraging from the dealers' standpoint in this district. The mills are not buying and dealers are loaded up. We quote:

Heavy melting stock, $14.50 to $14.75; old steel rails, rerollers, $15.50 to $15.75; No. 1 cast scrap, $14.50 to $14.75; cast borings, $8 to $8.25; bundled sheet scrap, $13.75 to $14; No. 1 railroad wrought $17 to $17.25; No. 1 yard faggoting scrap, $16.50 to $17; low phosphorus scrap, $18 to $18.50; wrought turnings, $11 to $11.50; busheling scrap, $13.50 to $14; iron axles, $24 to $24.50.

Coke.—Coke is very firm in this market and higher prices are being asked. Furnace coke has been particularly active, this being due partly to the limited output of last week, when on account of the Easter festivities many of the plants were out two or three days, the men not having returned, and partly to the demand from furnaces in the hard coal district which are turning to coke when they are unable to obtain their usual supply of anthracite. The miners in the Clearfield district are still out and this has resulted in an increased demand from the Connellsville regions. Strictly Connellsville furnace coke is quoted $2.80 to $2.90, ovens, although $3 has been paid. For foundry coke the market is $3 to $3.10, while as high as $3.25 to $3.50 has been obtained. The estimated production of the Connellsville district for the week ending April 14 was 272,581 tons and for the lower Connellsville region 100,810 tons.

The Pacific Hardware & Steel Co. reports its San Francisco plant intact. Business was resumed Saturday.

CHICAGO.

Effects of 'Frisco Disaster Discussed. —Preference in Shipments.

Office of *The Iron Trade Review*,
1164 Monadnock Block, April 24.

With the passing of the first shock of the appalling calamity at San Francisco, consideration is being given by iron and steel interests to the ability of the structural mills of the country to supply the demand for steel that will be felt there as soon as the work of rebuilding is commenced. The United States Steel Corporation has taken prompt action in the matter by issuing instructions that all material destined for this work be given precedence over all other business, a ruling that will be followed, it is intimated, by other producers. The market here is without any feature of particular interest, aside from this topic. The contract for the Maison-Blanche department store in New Orleans, involving 6,000 tons of structural steel, is still pending, though all the bids are in. Several new structural projects have come up in Chicago, their total steel requirement aggregating several thousand tons. Contracts have been let by the Chicago, Milwaukee & St. Paul railway for 1,400 tons of bridge material; to the Wisconsin Bridge Co., Milwaukee, and for 900 tons of steel to the Chicago Bridge & Iron Works. The Chicago and Northwestern railway has also let a contract for 1,500 tons of steel for new bridges. Trading in steel bars has practically subsided since the withdrawal April 14, as mentioned in our report last week, of the $2 concession, allowed to implement inteersts who placed their contracts in the two weeks ending that day. Practically the entire trade covered for the year's requirements during this period on the basis of 1.40c Pittsburg, about 150,000 tons being booked. Two contracts of 10,000 tons each were offered to mills by local jobbers on the same basis, but were declined, as only implement manufacturers whose annual consumption exceeded 500 tons were allowed to participate in the concession. Bar iron is without particular movement, although one contract for 2,000 tons was placed by a western railroad. The price remains firm at 1.66½c Chicago. There is a good demand for pig iron, especially for northern grades, a contract for 7,500 tons having been let by an Indiana car builder. The malleable and basic wants of this community, which exceed 50,000 tons, are still under negotiation. An improvement is noted in sheets, and prices have advanced $1 a ton on box annealed from stock. The Illinois Steel Co. has now in operation 11 of its 14 new open-hearth furnaces, but every ton of steel produced still goes to its finishing mills. Forging billets are very scarce, the local price being firm at $35. Inquiry for standard rails is good, the Carnegie Steel Co. having added about 25,000 tons to its books in the week under review. The best delivery that can be made by this interest on this product is the last quarter. Coke is plentiful, and prices have softened, Connellsville 72-hour brands being offered at less than $3 ovens.

Pig Iron.—The demand for pig iron, while still considered heavy, has switched from forward deliveries to earlier wants. For some months past, melters have been taking their iron as fast as furnaces could ship it, and quite a number now find themselves with nothing left for May and June consumption. Some difficulty will be experienced in supplying these needs in view of the tightly sold condition of northern producers for the first half, and there is a disposition to ask a small premium for such deliveries. Northern furnaces are participating the most actively in the current buying. It is practically all for foundry grades, and is being closed on the basis of $18.75 Chicago for No. 2 foundry. One contract for 7,500 tons from an Indiana car builder, involved 5,000 tons of malleable which is the only large contract for this product that was placed last week. The bulk of the malleable interests are still holding off in anticipation of securing a better price than $18.75. The American Steel Foundries is in the market for 3,000 to 5,000 tons of basic iron, and another local consumer has intimated a willingness to buy a large tonnage providing the price is right. Neither the Alabama quotation of $18.40, nor the Virginia price of $18.85, Chicago, meets his views, however. Standard southern irons are unchanged at $14 Birmingham for No. 2. There are some offerings at $13.75 from furnaces outside the Birmingham district, but they have not materially affected the market. Lake Superior charcoal continues at $19.50, a fair tonnage having been taken at this price. Our quotations are as follows:

Lake Superior charcoal	$19.50 to 20.00
Northern Foundry No. 1	19.25 to 19.75
Northern Foundry No. 2	18.75 to 19.00
Northern Foundry No. 3	18.25 to 18.75
Northern Scotch Foundry	19.25 to 19.75
Ohio Strong Softeners No. 1	20.20
Ohio Strong Softeners No. 2	19.50
Southern Foundry No. 1	18.40 to 18.65
Southern Foundry No. 2	17.90 to 18.15
Southern Foundry No. 3	17.40 to 17.65
Southern Foundry No. 4	17.15 to 17.40
Southern No. 1 Soft	18.40 to 18.65
Southern No. 2 Soft	17.90 to 18.15
Southern Gray Forge	16.40 to 16.90
Southern Mottled	16.15 to 16.65
Southern Silveries (4 percent to 6 percent Silicon)	18.40 to 18.90
Jackson Co. Silveries, 8 to 10 percent Silicon	23.30 to 24.30
Alabama and Georgia Car Wheel	22.65
Malleable Bessemer	19.00 to 19.25
Basic Iron	18.40 to 18.85

Rails and Track Material.—The inquiry for standard sections from the west is confined entirely to trolley lines. Several contracts are under negotiation, but nothing of importance has been closed in the past week. The Carnegie Steel Co. has added another 25,000 tons to its order books since our last report, through

the sales of its various offices, and the best delivery it can make is the last quarter. Light rails continue in good demand, western mills having all the tonnage they can roll in the next four months. Track supplies are extremely strong. Spikes for quick shipment are held at 2.15c to 2.20c by local sellers, and bolts are quoted as high as 3c for spot delivery.

We quote, standard sections, f. o. b. mill, $28; light rails, 30 to 45-pound sections, $27 to $28, 25-pound, $28 to $29; 20-pound, $29 to $30; 16-pound, $30 to $31; 12-pound $31 to $32, and light sections down to 8-pound, $38 to $40, all f. o. b. mill. Track supplies are quoted as follos: angle bars, 1.50c to 1.75c; spikes, (for quick shipment), 2.20c to 2.25c; (for forward deliveries), 2.05c to 2.10c; track bolts, 2.65c to 2.75c, base square nuts.

Structural Material.—The American Bridge Co. had in various stages of construction at the time of the earthquake and fire in San Francisco the Chronicle building, Head building, California Title & Trust building, Bank of California, and several smaller structures, the steel requirements of which aggregated 10,000 tons. No advices have been received as yet as to the present condition of these buildings. The company was also negotiating for the steel requirements of the Schroth and Magee buildings, amounting to 3,000 tons. Whether these will be indefinitely postponed in the light of the recent catastrophe, it has not been advised. That the work of reconstruction of the ruined city will be speedily pushed, however, is evidenced by the fact that the George A. Fuller Co. and the Thompson-Starrett Construction Co., as well as other local engineering and contracting firms, have already sent representatives to investigate the ruins. The United States Steel Corporation has expressed its willingness to aid in this work and has issued instructions that all material destined for the Golden Gate be given precedence in shipment. What action this course will have on the building projects under negotiation in other parts of the country remains to be seen. The bids are all in for the Maison-Blanche department store at New Orleans, and the contract for the structural steel, which amounts to 6,000 tons, is expected to be let in a few days. Nothing new has developed in connection with the Kesner building, Chicago, 1,000 tons, the Chicago Musical College, 1,400 tons, and the Chicago Telephone building, 2,500 tons. The contract for the Grunewald theatre, New Orleans, 2,400 tons, was awarded to the American Bridge Co. The Chicago, Milwaukee & St. Paul railway has ordered 1,400 tons of steel for new bridges from the Wisconsin Bridge Co., Milwaukee, and 900 tons from the Chicago Bridge & Iron Works. The Chicago & Northwestern railway has also let contracts for new bridges amounting to 1,500 tons.

Our quotations are:

Beams and channels, 3 to 15 inches, inclusive, 1.86½c; angles, 3 to 6 inches, 1.86½c; angles, larger than 6 inches, on one or both legs, 1.96½c; beams, larger than 15 inches, 1.96½c; zees, 3 inches and over, 1.86½c; tees, 3 inches and over, 1.91½c, with the usual extras for cutting to exact lengths, punching, coping, bending, or other shop work.

Quotations on lots from store are as follows: All angles three inches and larger, including six inches, $2.25 per 100 pounds base; angles over six inches, $2.35 per 100 pounds base; tees, three inches and larger, $2.30 per 100 pounds base; beams, three inches to fifteen inches, inclusive, $2.25 per 100 pounds base; beams, eighteen inches and larger, $2.35 per 100 pounds base; channels, three inches and larger, $2.25 per 100 pounds base.

Coke.—A much easier feeling prevails in coke. Western consumers are well stocked for current requirements and amply protected for the future. Supplies on track are growing and prices are declining. Connellsville 72-hour grades can be bought at $2.90 to $3.00 ovens, and Wise County at $2.75 ovens. Local by-product coke is offered at $5.65 Chicago. Little demand is felt for either.

Billets and Rods.—Demand for intermediate steel products continues of the same active proportions as formerly. Forging billets are scarce and are still quoted at a minimum of $35 Chicago. Wire rods are also difficult to obtain, the earliest delivery that can be given by Western makers being four weeks. Bessemer rods are held at $37 Chicago, and basic $38.

Iron and Steel Bars.—The withdrawal of the $2 concession on steel bars, allowed for the two weeks ending April 14, as mentioned in last week's report, has practically terminated the buying of this product. During the period the 1.40c Pittsburg price was in effect, it is estimated that between 150,000 and 200,000 tons was placed with mills, the bulk of it going to the Corporation. Only consumers of 500 tons and over were allowed to participate in the reduced price, and practically the entire Western trade took advantage of the opportunity to cover for season's requirements. The market is now firm at 1.50c Pittsburg, or 1.66½c Chicago. Inquiry for iron bars has strengthened as a result of the active trading in the sister product. A considerable tonnage has been taken in the week under review for deliveries extending into the third quarter, the largest contract being for 2,000 tons from a western railroad. Specifications are especially active. We quote carload lots, Chicago delivery, as follows:

Bar iron, 1.66½c; soft steel bars and bands, 1.66½c half extras; soft steel angles, less than 3 x 3, 1.76½c; hoops, 2.06½c base, full extras; old rail stock, 1.65c. There is a good movement from local warehouses and jobbers' prices are firm. We quote bar iron, 2.10c full extras; soft steel rounds and squares, 3 inches and larger, $2 per 100 pounds base; flats, 2 inches to 4 inches by 1⅛-inch and larger, $2 per 100 pounds base; flats, 4½ inches x 5 inches and 6 inches x 5-16 inch and thicker, $2 per 100 pounds base; all ovals, half rounds, $2 per 100 pounds base; steel bands, $1.95 to $2.00 half extras; soft steel hoops, $2.30 to $2.40 full extras. Other sizes not mentioned above, $1.85 per 100 pounds base, plus half extras.

Merchant Steel.—Implement interests have contracted freely for merchant shapes for deliveries commencing with July next, and large tonnage is under negotiation. Specifications show no diminution, the prospects being that no tonnage will be carried over from last year's contracts. Prices are without change, mill shipments, Chicago delivery, being quoted as follows:

Spring steel, 2.10c; sleigh shoe, flat sizes, 1.71½c; concave and convex, 1.86½c; cutter shoe, 2.35c to 2.40c; smooth finished machinery steel, 1.91½c; smooth finished tire, 1.86½c base; plow steel, 2.20c and upward, according to quality; toe calk steel, 2.21c; railway spring, 1.86½c. Cold rolled shafting, 50 per cent off in carload lots and 45 per cent in less than carload lots. Crucible tool steel, 6½c to 8c; special grades of tool steel, 13c and up.

Plates.—New tonnage for sheared plates is slow in coming forward. The local mill has not more than a month's run of business on hand and is pressing its customers for specifications. Eastern producers are also actively seeking business by promising early deliveries. The demand for universal plates is considerably more active, six months being the earliest shipment that can be made by the leading makers. Prices are without change, carload lots, mill shipment, being quoted as follows:

Tank steel, ¼ inch and heavier, up to 100 inches wide, 1.76½c base; flange steel, 1.86½c base; marine steel, 1.96½c base; all full extras. Plates 3-16 inch thick, $2 extra; gauges, 7 to 8, $3 extra; No. 9, $5 extra. Less than carload lots,

$5 extra. Store prices are very firm. We quote from local stocks: tank steel ¼ inch and heavier, up to 72 inches wide, 2c to 2.10c; 72 inches to 96 inches wide, 2.10c to 2.20c; 3-16 inch up to and including 60 inches wide, 2.10c to 2.20c; 3-16 inch 72 inches wide, 2.35c to 2.45c; No. 8, up to 60 inches wide, 2.15c to 2.25c; flange steel, 25c extra; heads, 25c extra.

Merchant Pipe.—Nothing of a noteworthy character has developed in the week under review. Demand is of brisk proportions and prices are uniformly maintained. We quote ¾ to 6-inch black steel pipe, 78.35 per cent discount from list, and galvanized, 68.35 per cent discount. From store, minimum quotations are 76½ to 77 per cent discount on the base sizes, ¾ to 6-inch black steel pipe.

Boiler Tubes.—The weakness evident a few weeks ago is no longer apparent. Jobbers are maintaining schedules and doing a good business. Mill conditions are also strong, specifications being to full contract requirements. Official discounts are as follows:

	Steel	Iron	Seamless
1 to 1¼ inches	40.35	37.35	53.00
1¼ to 2¼ inches	54.35	39.35	40.00
2½ inches	56.35	44.35	43.00
2¾ to 5 inches	62.35	51.35	
Up to 4¾ inches			50.50
6 to 13 inches	52.35	37.35	

Less than carload lots, from store, as follows:

	Steel	Iron	Seamless Steel
1 to 1¼ inches inclusive	40	35	42½
1¼ to 2¼ inches, inclusive	50	35	35
2½ inches, inclusive	52½	35	36
2¾ to 5 inches, inclusive	60	47½	42½

Old Material.—There is no noticeable change in the local market. With the exception of cast iron and heavy melting steel, all forms of scrap are plentiful. Prices are slow to strengthen. We quote as follows, gross tons being given in the first paragraph, as follows:

Old Steel Rails (4 feet and over)	$15.50 to 16.00
Old Steel Rails (less than 4 feet)	14.50 to 15.00
Old Car Wheels	18.50 to 19.00
Old Iron Rails	21.00 to 21.50
Relaying Rails, subject to inspection	27.00 to 27.50
Heavy Melting Steel	13.50 to 14.00
Mixed Country Steel	11.50 to 12.00

We quote as follows net tons:

No. 1 R. R. Wrought	$14.50 to 14.75
No. 2 R. R. Wrought	13.50 to 13.75
Shafting	16.00 to 16.50
Dealers' Forge No. 1	12.00 to 12.50
Wrought Pipe and Flues	10.50 to 10.75
No. 1 Cast, 150 pounds and less	13.25 to 13.75
No. 1 Mill	9.50 to 9.75
No. 1 Busheling	10.00 to 10.50
No. 2 Busheling	9.50 to 10.00
Country Sheet	8.00 to 8.50
No. 1 Boilers Cut	10.00 to 10.50
Boiler Punchings	12.00 to 12.50
Iron Car Axles	22.00 to 22.50
Steel Car Axles	18.00 to 18.75
Iron Axle Turnings	10.50 to 11.00
Cast Borings	8.50 to 8.75
Mixed Borings, etc	8.50 to 8.75
Machine Shop Turnings	10.75 to 11.00
Railroad Malleable	13.50 to 14.00
Agricultural Malleable	12.50 to 13.00
Stove Plate and Light Cast Scrap	10.50 to 11.00
Old Iron Splice Bars	16.50 to 17.00

CINCINNATI.

Northern Irons Comparatively Weaker Than Southern Brands.

April 24, 1906.

Pig Iron.—The developments of the week in the pig iron market have been unimportant and there is no particular change to be noted in the situation. Southern furnace interests are maintaining prices fairly well and $13.75 Birmingham for No. 2 foundry is the minimum quotation with strictly Birmingham interests holding for $14.00. In northern irons, as we intimated last week, the situation is weaker and for forward delivery $16.00 at furnace for No. 2 foundry can be done in southern Ohio. Inquiries are fair but still do not aggregate a tonnage of much importance. A few sales of lots running from 300 to 500 tons have been made, but there has been nothing large enough to test the market for extreme prices. Consumption from all reports continues without abatement, but it is believed that most consumers are covered to July 1. The heavy sales to cast iron pipe makers of southern iron have had a strengthening effect in that direction, but northern interests are apparently seeking business for the second half of the year and have comparatively few orders booked to take care of their production after July 1. With northern iron down to $16.00 at furnace and southern iron at $13.75 Birmingham, the market has witnessed a strengthening of 25c a ton on southern iron and a loss of about 25c per ton on northern iron prices. This would indicate that for the present at least southern producers would act independently and without regard to the northern furnace situation as to prices. What may develop, however, under an active buying movement, is difficult to forecast. We quote f. o. b. Cincinnati:

Southern Foundry No. 1	$17.25 to 17.50
Southern Foundry No. 2	16.75 to 17.00
Southern Foundry No. 3	16.25 to 16.50
Southern Foundry No. 4	15.75 to 16.00
Southern Foundry No. 1, soft	17.25 to 17.50
Southern Foundry No. 2, soft	16.75 to 17.00
Gray Forge	14.75 to 15.00
Northern Foundry No. 1	17.65 to 18.15
Northern Foundry No. 2	17.15 to 17.65
Northern Foundry No. 3	16.65 to 17.15
Jackson County Silvery, 8 per cent	21.15 to 21.65
Southern Charcoal	22.75 to 23.25

Finished Material.—The demand continues fairly active and the market is steady at unchanged prices. Bar iron is dull and is quoted at 1.75c to 1.80c f. o. b. Cincinnati.

We quote: steel bars at 1.63c, half extras, with dealers quoting 1.85c for iron and steel out of store. Galvanized sheets, No. 10 and No. 12, in car lots are 2.58c. We quote black sheets, No. 27 at 2.40c in car lots of 500 bundles. Black sheets out of store are selling as follows: No. 28, 2.85c; No. 27, 2.75c; No. 16, 2.35c; No. 14, 2.25c; No. 12, 2.15c. Tank plates are firm and sell out of store at 2 to 2.10c for ¼-inch and 2.10c for 3-16, Nos. 8 and 10. Beams and channels are quoted at 2.25c to 2.35c from stock and angles at 2.10c to 2.15c for base sizes.

In merchant pipe the demand is fairly good and prices not quotably changed, but there is considerable competition for any good sized orders that come to light. We quote f. o. b. Cincinnati:

MERCHANT PIPE.
(Basing Discounts)

	Steel Pipe		Guaranteed Wrought Iron Pipe	
	Black Per cent	Galv. Per cent	Black Per cent	Galv. Per cent
⅛ and ¼ inches	69.7	53.7	....	....
⅜ inch	73.5	61.3	....	....
½ inch	73.7	61.7	....	....
¾ to 6 inches	77.7	67.7	....	....
7 to 12 inches	72.7	57.7	....	....

Coke.—There is some inquiry for furnace coke for the second half of the year, but immediate shipment business is quiet. Foundry coke is dull for prompt shipment and for forward delivery $2.75 f. o. b. ovens can be done. Prices in the leading coke producing districts are as follows:

Wise County, Va. Furnace Coke prompt shipment	$2.50 per ton
Wise County, Va. Foundry Coke prompt shipment	3.00 to 3.25 per ton
Pocahontas Furnace Coke on contracts	$2.25 to 2.50 per ton
Pocahontas Foundry Coke on contracts	2.75 to 3.00 per ton
Connellsville Furnace Coke prompt shipment	2.50 per ton
Connellsville Foundry Coke prompt shipment	3.00 to 3.25 per ton
New River Foundry Coke on contracts or prompt shipment	3.00 to 3.25 per ton
New River Furnace Coke, prompt shipment	2.50 per ton

†Wise County, Va., Coke on Furnace contracts is sold mainly on a sliding scale basis for pig iron prices on the following basis: $1.65 per ton on $9.00 pig iron, plus 17 per cent of the advance on pig iron above $9.00 Birmingham

Old Material.—Dealers' stocks are quite moderate and there is not much consumptive demand, but the general tone of the market is steady to firm. We quote f. o. b. Cincinnati:

Old No. 1 railroad wrought, net tons	$14.00 to 14.50
Cast machine and foundry, net tons	12.50 to 13.00
Old iron rails, gross tons	20.00 to 20.50
Old steel rails, gross tons	15.50 to 16.00
Old short lengths, gross tons	16.00 to 17.00
Old iron axles, net tons	22.00 to 23.00
Stove plate, net tons	10.00 to 10.50
Wrought turnings, net tons	9.50 to 10.00
Cast borings, net tons	7.00 to 7.50
Car wheels, net tons	16.00 to 16.50

CLEVELAND.

Lower Quotations in Pig Iron.—Increased Demand for Plates.

OFFICE OF *The Iron Trade Review*,
BROWNING BUILDING, April 24.

Iron Ore.—Nothing has occurred since the formal opening of navigation to interfere with ore shipments, and a considerable tonnage is being brought down. The chartering of about 100,000 additional tonnage was reported late last week, but with this exception no extra carrying capacity has been contracted for recently. The froz-

en condition of the ground on the ranges and at the upper lake docks is making the movement of ore necessarily slow, and some difficulty has been met in caring for all the lake tonnage now under contract. However, the early season difficulties are gradually being cleared away, and it is expected that navigation will be in full blast by May 15. No ore sales have been reported, as consumers are fairly well covered and ore interests have little to offer. The movement from dock to furnace is extremely heavy and the prospects are that May 1 will see the docks well cleared. Prices continue unchanged on the basis of $4.25 Old Range Bessemer.

Pig Iron.—Reports of pig iron transactions during the last week are somewhat conflicting, especially in foundry iron, where the improved tone noted about April 1 has been broken to a certain extent by low quotations of certain northern Ohio interests. A large number of fair sized contracts, aggregating a good tonnage have been closed during the last ten days at $16.50 furnace, and quotations 50 cents lower are reported in a few instances. This has had the effect of influencing consumers to place orders only for their immediate requirements and to postpone indefinitely the heavy buying movement which apparently had begun. In spite of this, however, some foundry iron is being placed as high as $17 furnace. Basic continues exceedingly active with several sales of good size for the third quarter at $17 valley, and a lot of 1,000 tons for immediate shipment at the same figure. Bessemer is firm with the tonnage available very small and prices steady on the assurance that the corporation will take any remaining tonnage. Coke is about the same as a week ago; certainly it is no stronger. Prices quoted are $2.50 to $2.75 for furnace coke at the ovens, and $3 to $3.25 for foundry coke. We quote, f. o. b. Cleveland, as follows:

Bessemer	$18.10 to 18.25
No. 1 Foundry	18.00 to 18.50
No. 2 Foundry	17.50
No. 3 Foundry	17.00 to 17.25
No. 2 Southern	17.85 to 18.10
Gray Forge	16.35 to 16.85
Gray Forge, Southern	15.85 to 16.35
Lake Superior charcoal	19.50 to 20.00

Finished Materials.—An improved demand for plates is a feature of the present market. The smaller consumers are buying actively and a good tonnage is being placed. The larger consumers are chiefly tied up on contract until July 1. Bar iron is also in better demand, as the result of reduction in price practically to the same level as that of steel bars, and good sized lots are being sold. Prices of the leading interest are unchanged, while independent mills are holding to the basis of 1.50c Pittsburg, plus freight to the point of delivery. Some small sales of light rails are reported. Billets are extremely scarce, $36 at the mill being asked for forging billets, and little business is being placed at that figure. A heavy demand continues in structural materials, jobbers securing a large share of current orders. A great deal of confusion has resulted from the reduction in price granted agricultural implement makers on their steel bar requirements. The fact that some other small agricultural interests shared in its benefits, which were denied to larger consumers in slightly different lines, has caused considerable complaint, and the guarantee against decline given by producers to purchasers of steel bars at the higher figure some time ago is also being heard from in this connection.

Old Materials.—No further improvement than that reported last week has been displayed, and the prices are on the same level with the market exceedingly quiet. We quote Cleveland delivery as follows:

Old iron rails	$21.00 to 22.00
Old steel rails (over 6 feet)	16.00 to 16.50
Old steel rails (under 6 feet)	16.50 to 17.50
Old car wheels	16.50 to 16.75
Steel boiler plate	12.00 to 13.00
Steel axles	19.00 to 20.00
Malleable iron (railroad)	14.50 to 15.00
Malleable iron (agricultural)	12.50 to 13.00
Heavy steel	14.00 to 14.50
Country mixed steel	12.50 to 13.00

We quote net tons, as follows:

No. 1 R. R. wrought	15.00 to 16.00
No. 1 busheling	12.50 to 13.00
No. 1 machine cast	13.25 to 13.70
Iron axles	22.00 to 23.00
Axle turnings	11.00 to 12.00
Wrought turnings (free from cast)	9.00 to 10.00
Grate bars	9.50 to 10.00
Pipes and flues	11.50 to 12.00
Tank iron	10.50 to 11.00
Hoop and band iron	7.50 to 8.00
Sheet iron	6.50 to 7.00
Wrought drillings	9.00 to 10.00
Stove plate	10.00 to 10.50
Cast borings	7.50 to 8.00

PHILADELPHIA.

The San Francisco Disaster and Coal Strike Features of the Situation.

April 24.

Pig Iron.—Aside from San Francisco's great disaster, the effects of which upon general business are likely to be felt for some time, the strike of the anthracite miners continues a disturbing factor in eastern markets. At least one more furnace has been added to the number of those compelled to bank their fires for lack of fuel, and the situation of several others grows constantly more embarrassing. The difficulty of attempting a sudden change from anthracite to coke is shown in a considerably decreased production just at a time when buyers are clamoring for prompt deliveries. Except for these drawbacks, which tend to check the growing buoyancy, the pig iron situation may be said to be in excellent shape. The buying continues in large volume, principally now for the last half of the year, and prices are higher than they have been for some time. Considerable sales of No. 2 X foundry have been made at 19, though 18.75 more generally prevails. The demand from the foundries is especially good, and unless there is soon a change for the better in the anthracite labor troubles $20 iron may be looked for. No. 1 X foundry readily brings $19.25 and malleable $19.50. Prices may be quoted as follows:

No. 1X Foundry	$19.25 to 19.50
No. 2X Foundry	18.75 to 19.00
No. 2 Plain	18.25 to 18.50
Standard Gray Forge	16.75 to 17.00
Basic	17.90 to 18.15
Low Phosphorus	25.00 to 26.00
Southern No. 2X. rail	18.75 to 19.00

Finished Material.—The reconstruction of San Francisco is expected before long to bring in considerable business to the mills making structural material, if they can see their way clear to take it in view of their present large contracts. In the meantime there is no material change from last week, new orders being fairly numerous and prices practically unaltered as follows: Beams, channels and angles according to specifications, 1.83½c to 2c; refined iron bars, 1.63½c to 1.73½c; steel bars, 1.63½c to 1.73½c; plates, 1.73½c to 1.83½c.

Old Material.—After its spurt of three or four weeks ago, the market has become rather quiet. The demand from the mills is only moderate. It is worth noting as an interesting fact, though without bearing on the market, that a few days ago a sailing vessesl arrived in port here with a cargo of about 2,500 tons of scrap from San Francisco, mostly horse shoes and small stuff. The usual length of such a voyage around the Horn is not far from 150 days, certainly amply sufficient for wide fluctuation in prices. Similar cargoes may possibly follow as a result of last week's disastrous fire, as there is said to be little market for old material on the Pacific coast. Prices, which show little change from last week, may be quoted as follows:

Old steel rails	$16.75 to 17.00
No. 1 steel scrap	16.50 to 17.00
Old steel axles	20.50 to 21.00
Old iron axles	25.00 to 26.00
Old iron rails	21.00 to 22.00
Old car wheels	17.00 to 17.50
Choice scrap, R. R. No. 1 wrought	19.50 to 20.00
No. 1 yard scrap	18.25 to 19.20
Machinery scrap	15.75 to 16.25
Low phosphorus scrap	20.50 to 21.00
Wrought iron pipe	14.50 to 15.00
No. 1 forge fire scrap	15.00 to 15.50
No. 2 forge fire scrap, ordinary	10.50 to 11.50
Wrought turnings	13.25 to 13.75
Axle turnings, heavy	14.50 to 15.00
Cast borings	10.25 to 10.75
Stove plates	12.25 to 12.75

The United States Steel Corporation suffered practically no loss in the San Francisco disaster. The warehouses of the tube and wire companies are intact. The offices were destroyed, but the office force escaped unhurt.

NEW YORK.

Structural Men Interested in San Francisco Situation.—April Sales of Rails Large.

OFFICE OF *The Iron Trade Review*.
ROOM 1315. No. 150 NASSAU ST., April 23

Pig Iron.—There was a decided increase of activity in the pig iron market during the last days of the week. Both inquiries and sales grew in volume until it appeared that the long expected buying movement was about to materialize. But consumers are still wary of long time delivery business and are seemingly content to provide only for immediate needs. Orders were individually somewhat larger than those of the past few weeks, a large number of 1,000 tons each being reported. The sales of the week will make a total slightly in excess of 40,000 tons. This total represents all varieties and grades of iron, foundry and forge predominating. Prices of foundry grades have been ragged and irregular, but those governing sales of steel irons were fairly steady. Radiator manufacturers and stove founders were the chief purchasers, although the general and machine foundries also took fair quantities. Pipe founders have increased their purchases, but little of this business came to the local market. The spurt came very quietly and dealers are reluctant to say much about individual sales. Purchases of Bessemer and basic were inconsiderable. The inquiry for 5,000 tons of basic noted last week still remains unsatisfied. Consumers have apparently ceased speculating about the final outcome of the difficulties in the coal fields and are proceeding upon the basis of present conditions. Troubles in the anthracite field have thus far resulted in the blowing out of four or five stacks, but the significance of this movement is in doubt, for at least two of these furnaces might easily have continued on coke. Among the inquiries now in the market is one for 20,000 tons of malleable. The movement of ferro-manganese is insignificant and prices are still oscillating above the normal level. Foundry coke is quiet with prices practically stationary, while furnace coke is in good demand. The following are prices at tidewater:

Northern No. 1 Foundry	$18.25 to 19.00
No. 2 Foundry	17.75 to 18.50
No. 2 Plain	17.50 to 18.00
No. 1 Southern Foundry	18.00 to 18.50
No. 2 Southern Foundry	17.50 to 18.00
No. 3 Southern Foundry	16.75 to 17.25
No. 4 Foundry	16.50 to 17.00

Certificates and Warrants.—It has been another dull week at the New York Produce Exchange market for pig iron certificates and warrants. The regular grade was barely steady and altogether prices have been little better than nominal. Only one sale was reported during the entire week and that of 100 tons of regular for April delivery which brought $16.50. Trading in standard foundry contracts has not yet fairly begun. Today's quotations at the New York Produce Exchange were as follows:

Standard Foundry Contracts.

	Bid.	Asked.
April	17.25	....
May	17.25	....
June	17.25	....
October	17.25	....

Foundry Warrants.

	Bid.	Asked.
Cash	16.40	....
April	16.60	....
May	16.40	....

Finished Iron and Steel.—The steel trade has been interested during the week in the reports regarding the behavior of steel under earthquake stresses and the possible amount of material required to rebuild the city of San Francisco. As was to have been expected the elastic material stood the unusual strains well, and the effect of the disaster will be to stimulate the use of steel for building purposes. Milliken Bros., Inc., which built a number of the more important buildings in the metropolis of the Pacific coast, announce that the Humboldt bank, the contract for which was awarded the firm some weeks ago, will be erected on the original site and according to the original specifications. The American Bridge Co. has contracts involving some 10,000 tons of steel for structural work in San Francisco. It is the general opinion that the reports concerning the amount of steel required to rebuild the city have been greatly exaggerated and that the demand will not cause an extraordinary strain upon the structural mills of the country. Orders for structural material placed during the week make a total not far from 30,000 tons. These were mostly for comparatively small lots although there were a few of goodly proportions. The contract for the Hamburger building to be erected at Los Angeles, requiring about 5,000 tons of steel has been awarded the Llewellyn Iron Works. The American Bridge Co. secured contracts for railroad bridges for the Lehigh & Erie involving 3,500 tons, and the Chicago & Northwestern placed orders for 1,500 tons of bridge material with the Pennsylvania Steel Co. The Rochester & Pittsburg placed contracts for a similar amount and the Milwaukee & St. Paul two aggregating 2,300 tons. A number of large contracts are still pending although the more important building projects of this city have either advanced beyond the contracting stage or have been abandoned. The week has been a good one in the rail market. The more important sales will be given in detail elsewhere in this issue. The plate trade continues quiet with steady movement in regular channels. There has been somewhat more activity in the market for bar iron, but prices have not improved. The following are prices at tidewater: Angles, 3 to 6 inches x ¼ inch and heavier, 1.84½c; beams, 3 to 15 inches, 1.84¼c; tees, 3 x ¼ inch and heavier, 1.89½c; plates, carloads, tank, 1.74½c; flange, 1.84½c; marine boiler, 2.41½c; refined iron bars, 1.69½c to 1.74½c; soft steel bars, 1.64½c; sheets, No. 28 black, 2.40c.

Old Materials.—Things have improved slightly in the market for scrap material. Prices are, if anything, stronger and the volume of business is apparently increasing. Brokers are in some cases willing to pay more than consumers, an indication which favors holders and seems to show that somebody has been buying short. The railroads are offering more freely and from all reports full prices have been obtained. Several lots of heavy melting steel scrap of a few hundred tons each have been reported sold during the week at $16.50 and $17.00 delivered at the buyer's yard. Wrought railroad scrap is in better demand and sales of about 900 tons of this material are reported. The following are prices approximately f. o. b., tidewater:

Old iron rails	$21.00 to 22.00
Old steel rails, long lengths	14.50 to 15.00
Old steel rails, short pieces	14.25 to 14.50
Relaying rails	24.00 to 25.00
Old car wheels	17.00 to 18.00
Old iron car axles	24.00 to 25.00
Old steel car axles	19.00 to 19.50
Heavy melting steel scrap	14.25 to 14.50
No. 1 railroad wrought scrap	17.00 to 18.00
Iron track scrap	16.50 to 17.00
Wrought pipe	12.00 to 13.00
Cast borings	9.50 to 10.00
Wrought turnings	13.50 to 14.00

BIRMINGHAM.

Conditions Satisfactory and Prospects Favorable.—Some New Plants.

Birmingham, Ala., April 23.—The best of feelings prevail in iron circles in the Birmingham district and not only are actual conditions satisfactory, but the prospects for the future are exceedingly bright. A number of small lots were sold during the past week, and the new week opened quite strong. The quotations for iron in this section are still strong, No. 2 foundry being held at $14 per ton by both the larger and smaller manufacturers. Shipments from the district are not as brisk as they have been, the home consumers getting a large tonnage from the furnaces. There are still hopes that the recent advance in freight rates will be taken off. This twenty-five cents margin will give sales agents

some advantage, it is stated, in certain quarters. The production as yet is unchanged, though in the next few days one or more furnaces will be ready for the torch. The Sloss-Sheffield Steel & Iron Co. is to blow in its city furnace, adding two hundred tons a day to the output.

As a whole, the production in Alabama is a little off. Five furnaces are being repaired. One new furnace, located at Gadsden and belonging to the Alabama Consolidated Coal & Iron Co., is nearing completion. Just as soon as the demand for iron improves, the manufacturers in this district will be ready to meet every emergency. There are no indications of an advance in iron prices as yet, though rumors prevail that a strong demand in steel will make a good demand for iron. Sales already made for delivery during the third quarter of the year indicate that the make of that period is going to find a steady demand.

The American Radiator Co., according to statements made on good authority, is about to settle on a site for the erection of a large plant in this district. The Brooklyn Foundry Co. is making preparations for the erection of a soil pipe plant in this district. It is given out that a site has been secured at North Birmingham, near the plant of the Dimmick Pipe Co., and the furnaces of the Sloss-Sheffield Steel & Iron Co.

It is denied that the Southern railway intends erecting locomotive works in the south which will cost $3,000,000.

Announcement is made that the Republic-Tennessee companies will begin immediately on repairing coal washers at all their mines, the ultimate object being to increase the coke output.

ST. LOUIS.

Better Demand for Pig Iron and Prices Are Firm.

April 24.

A better demand for pig iron has given a better tone to the market and prices have ruled firm all week, with orders extending further into the future. Orders for the third quarter, while not heavy, are more common. It is evident that melters are coming to the conclusion that there is not likely to be any decline in the iron market and they are more willing to stock up. The fact that a large tonnage of steel will be needed at Frisco at once to rebuild the city could not in itself do otherwise than lend strength to the market.

Fourteen dollars for No. 2 southern is the prevailing price. All the furnaces have swung into line and there does not seem to be any more cheaper iron on the market. All the furnaces are well supplied with orders for the next three months, and while they could turn out more, they are not eager to book any heavier orders, as they fully believe there will be an upturn in the market. Inquiries are numerous and for longer periods than heretofore. In fact, the iron market seems to have lifted itself out of the rut into which it had fallen and some big business will be done in the next few weeks.

Coke remains about the same. There is not so much fear of a strike as there was and consequently not such haste to bank up. Three dollars to $3.25 plus the freight rate from Connellsville is the prevailing price, though better grades run higher.

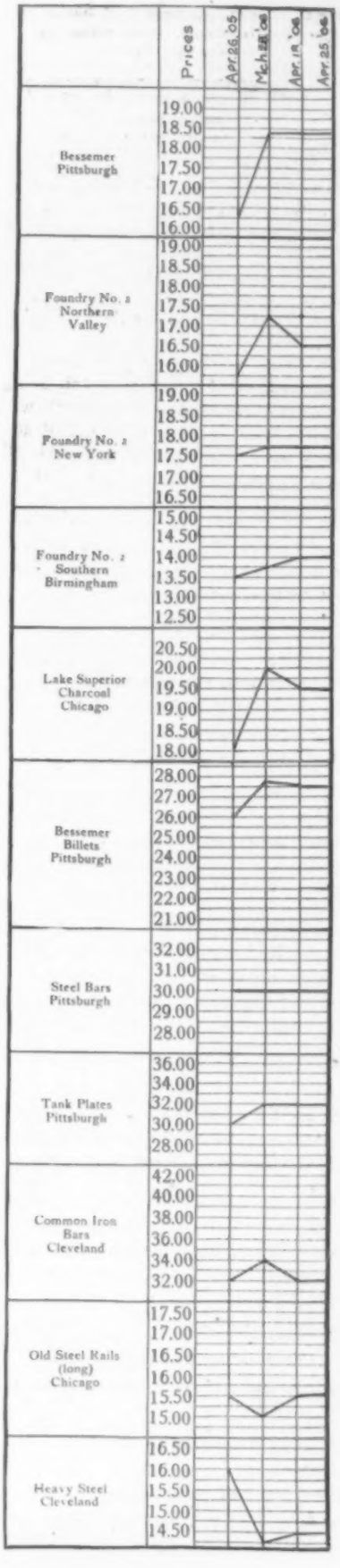
Iron quotations, including the freight rate of $3.25 to East St. Louis, range as follows:

Southern No. 1	$18.00 to 18.50
Southern No. 2	17.50 to 18.00
Southern No. 3	17.00 to 17.50
Southern No. 4	16.75 to 17.25
Gray Forge	16.50 to 17.00

Finished Material.—There is no abatement in the building activity in St. Louis, and the tonnage this year promises to break all records. If one-third of the buildings materialize that architects are busy drawing plans for, there will be more work than the contractors can finish before freezing. Contractors report difficulty in getting material, saying that Pittsburg is at least four months behind on their orders. Structural materials hold firm, though there is no tendency to rise as one might expect from the wholesale building which is soon to begin at San Francisco. Mayor Schmitz of San Francisco, has telegraphed to St. Louis, as well as to Chicago, Philadelphia, Baltimore, and other big cities throughout the United States asking how many architects can go immediately to the Golden Gate city, which indicates that it is the intention to proceed with rebuilding the city at once. St. Louis contractors are so far away that they have not begun to figure on doing any building on the Pacific coast, especially as they have orders for all that they can handle here in their own city. The only thing which could induce them to go would be the fancy prices for rush work. A report, however, is current that Frisco will have to go abroad for its steel, as United States mills are too far behind to supply the material in time.

British Blast Furnaces.—The number of British iron furnaces in blast March 31, 1906, was 368, according to reports made to the *Iron and Coal Trades Review*. The average for the quarter ending with that date was slightly less than 364, against 359 in blast during the preceding quarter. The average number of furnaces out of blast for the quarter ending with March was 159, the total number of furnaces in Great Britain being 523 with four in process of construction. During the quarter 52 furnaces were shut down for rebuilding or relining.

PRICE CHART.



THE IRON TRADE REVIEW

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April 26, 1906

THE SAN FRANCISCO DISASTER.

It will be long ere the exact results of the appalling catastrophe at San Francisco can be accurately summarized. The steel trade is very anxious to know how buildings of steel construction fared as to the earthquake and as to the fire which followed it, and is naturally interested also in forecasts as to what business will result.

It would appear from the somewhat confused accounts of the cursory examinations which have been made that the steel structures were not damaged, at least as to the framework, by the earthquake. While San Francisco did not lead in skyscrapers, there were a large number of fairly large buildings of steel construction, running from ten to sixteen stories in height. Certainly none of these collapsed as a result of the earthquake, and it is not known positively that the framework of any large number was injured by the fire. It will require the most careful investigation, in case any material damage is developed, to determine whether such damage was a direct result of the fire, or was due in part to a loosening of the fireproofing by the earthquake, thus rendering the steel more vulnerable by the flames.

As a general principle it can be said that the San Francisco steel buildings were not designed with any great reference to earthquakes. A fairly heavy form of construction prevailed, but it cannot be said that this was strictly due to the fear of earthquakes. In some isolated cases, however, it is the fact that buildings were braced particularly against seismic disturbances, the heavier floor beams and girders being diagonal, with the lighter beams parallel to the sides.

Some statements have already appeared as to the behavior of reinforced concrete construction in San Francisco. The public will probably conclude that such premature statements claim too much, and will be disposed to doubt whether, if the showing finally proves to be as claimed, the definite knowledge of it could in any event have been gained so soon.

The present form of erection, by the use of rivets instead of bolts, increases the stiffness of these steel structures as compared with the usages of but a few years ago, even where the fabricated pieces as they leave the shop are identical. It is a simple matter, furthermore, to design a steel structure so that it will have any degree of stiffness desired against any force which it is aimed to guard against. The reinforcing of concrete, of course, offers the same latitude of choice.

It will, therefore, be quite possible to rebuild San Francisco with structures calculated to resist seismic disturbances greater than occurred last week. Had the memory of previous disturbances been fresher in the minds of the present generation, this policy would have been more fully followed in structures which were destroyed.

It will not be so necessary for very high structures to be built as is the case where new erection is sporadic and spasmodic. The wholesale destruction of buildings over large areas permits an easy readjustment of property lines so that a vastly more homogeneous arrangement will be possible, and this will no doubt be the outcome, except for the disturbance which will be caused by some owners desiring to erect permanent structures while others will probably prefer to erect temporary structures, which can be put into service at the earliest date, allowing owners to recuperate and in the course of a few years undertake the erection of more permanent buildings.

Predictions of large benefits to come to the business world through the rebuilding of the city should be discouraged. The steel trade well remembers what rosy forecasts were made of business to grow out of the Baltimore fire, and how those forecasts have failed of fulfillment. A community visited by such a catastrophe as that of last week is paralyzed. The loss in property is enormous, but illy covered by insurance, and current profits are largely shut off.

The financial adjustments promise to be made without disturbance. A large portion of the insurance loss is borne by London, and the decline of a half percent in consols last Friday is attributed to the selling of these securities by British companies against some early adjustments. A further effect was the decline in sterling exchange in New York, which indeed relieved the financial situation. It will be only the highest grade of securities which will have to be converted into cash and the market can readily stand their sale, while there will be large payments in cash to this country, which will make money more plentiful.

SOME EFFECTS OF THE STRIKE.

Although almost four weeks have elapsed since the formal opening of the coal strike, its effects as yet have been scarcely noticeable, so slight, in fact, as to afford no basis on which to estimate its ultimate bearing upon the iron, steel and manufacturing interests. The partial resumption of activities in the bituminous regions and the fact that the coking coal fields are not involved render the Pittsburg and valley districts fairly safe for weeks and even months, though already occasional instances are coming to light of furnaces compelled to bank on account of a fuel famine. In the anthracite districts the effect has been more drastic and more immediately apparent, necessitating the closing down of four or five furnaces which had been running on hard coal.

With few exceptions, however, prices have continued on the same level; where changes have occurred they have been due to causes other than the coal strike. Coke remains at practically the same quotations as immediately before the strike became ef-

fective and production is about as heavy as it was a month ago. It is announced that eighty-eight of the eighty nine blast furnaces of the Steel corporation are in blast and despite the stopping of a few scattering stacks,—so far no more than the average number due to the many ills to which blast furnaces are heir,—pig iron production continues at an unparalleled scale, and prices on an average are identical with those of early March.

While these conditions continue, there is little to be feared from the strike. What is a matter of grave concern is that the pig iron output, especially in the anthracite regions, may be materially reduced. Furnaces in these districts have for years been dependent upon certain hard coal interests for their fuel; they have found this supply satisfactory and have had no reason for entering into business relations with soft coal operators. Now that their sources of supply are cut off, with no prospect of renewal at an early date, they find it difficult to secure aid from coke and soft coal interests which, by reason of the strike, are meeting the requirements of their regular customers with difficulty.

Manufacturing concerns, as a rule, were well stocked with coal when the strike became effective; their reserve supplies, pieced out with what the operating bituminous mines can furnish, will enable them to operate for months without embarrassment. But the consumption of iron at the present is at an enormous rate, quite equal to production. Any curtailment of the iron output means distress to the users of the raw material as well as to consumers of the semi-finished product in which conditions for some time have approached a famine.

Many lines of manufacturing can not be affected by a strike even if it is prolonged through the summer. Locomotive and car shops are crowded as never before; steel rail mills are booked through the current year. Their requirements of materials will be regular and undiminished. Building operations already under way will call for enormous tonnages of structurals through any period which the strike can reasonably be expected to last. Ship yards have their available tonnage for the year under contract and in numerous other iron and steel consuming industries similar conditions prevail. To meet immediate and certain demands the furnace output of the country must be maintained at practically the present figure. Shipments from stock have been the rule for months; almost no iron is being stored, and any dimunition in production will work immediate hardship in a wide range of industry. Here is a point at which danger lies.

BRITISH IMPORTS AND EXPORTS.

Returns to the British foreign trade in iron and steel for the month of March and for the first quarter of the current year have been made public. Exports have increased materially, in March to the extent of 28,000 tons in volume and £379,000 in value, and for the first three months of the year 185,000 tons in volume and £1,895,000 in value. Imports also have gained, the increase for the quarter being 68,000 tons, though March actually showed a decline of 7,000 tons over the corresponding month of last year. The higher level of prices is well illustrated in the case of semi-products, in which the tonnage of imports increased 11 per cent during the quarter, whereas the value rose more than 14 per cent. Details of the imports for the quarter ending with March (in tons) are as follows:

	1905.	1906.
Pig and puddled	32,412	21,071
Wrought bar, etc. ...	20,719	36,811
Steel ingots, etc.	148,214	164,268
Steel bars, etc.	10,994	17,872
Steel girders, etc.	27,730	42,701
Rails	9,964	4,580
Plates	14,168	30,793
Other iron and steel	53,338	67,835
Totals	317,539	385,930

Among the lines of export pig iron was a heavy gainer, showing an increase of 105,000 tons for the quarter, about 24,000 tons going to the United States. The itemized statement of exports (in tons) for the quarter is as follows:

	1905.	1906.
Pig and puddled	180,487	285,942
Wrought bars, etc. ...	31,286	32,652
Steel ingots, etc.	1,221	705
Steel bars, etc.	30,860	43,666
Steel girders, etc.	15,173	27,296
Rails	133,586	100,919
Plates	39,373	56,291
Galvanized sheets	101,801	116,234
Black plates	13,484	15,012
Tinplates	95,659	91,771
Other iron and steel	164,845	221,923
Total	807,775	992,411

INDIANA PLANT.

DETAILS OF STEEL CORPORATION PLANS ANNOUNCED.

Retiring Officers Re-elected.—Record Earnings For First Quarter.

(Special Telegram.)

New York, April 25.—At the meeting of the directors of the United States Steel Corporation yesterday the entire list of retiring officers were re-elected as follows: Elbert H. Gary, chairman of board; William E. Corey, president; James Gayley, first vice president; Francis L. Stetson, general counsel; Richard Trimble, secreary and treasurer; Wm. J. Filbert, comptroller. H. C. Frick, P. A. B. Widener and Norman B. Ream succeed themselves as members of the finance committee.

A new high record was set for first quarter earnings, those for the three months of the current year being $36,634,490, an increase of $13,608,594 over the corresponding period last year. Unfilled orders aggregate 7,018,712 tons, an increase over a year ago of 1,421,152 tons. The regular quarterly preferred dividend of 1¾ per cent was declared, $10,500,000 was set aside for various expenditures, $3,000,000 for "special improvement and replacement funds," and the surplus remaining was $5,567,000 against $2,573,407 a year ago.

The announcement of additional details concerning the plant at Gary, Ind., brought out the fact that a square mile of land will be used for steel mills alone. This will be on the lake shore and will have direct connection with four trunk lines and with lake steamers. The mills will be able to handle five million tons of ore a year, which will mean a product of three million tons of pig iron. There will be sixteen blast furnaces, eighty-four open-hearth furnaces and six rolling mills. In steel rails alone the production will be 75,000 tons a month.

Ores will be brought down by the corporation's steamers which will be increased to handle the new business. Large docks will be erected near the mills and the most improved appliances for carrying the ore from ship to furnace will be installed. Railroad facilities will be equally good. Coal from the bituminous fields of Indiana and Illinois will be brought into the plant without rehandling and coke will be shipped in from the Pocahontas fields. The Lake Shore and Michigan Southern, the Pennsylvania, the Wabash and the Baltimore & Ohio will all run trains to the yards and they will also be reached by the Indiana Harbor R. R. and by the Chicago, Lake Shore and

Eastern. All these railroads are to straighten out their tracks, change the crossings and lower and elevate their tracks. The Lake Shore and Baltimore and Ohio will build a Union Station and the other two trunk lines will have stations further south.

The bed of the Grand Calumet River, which meanders through the square mile set aside for steel mills, will be straightened so as to run through the southern side of the tract. Water from the river will be serviceable for use to the mills. The Chicago, Lake Shore & Eastern is owned by the Steel Corporation. It has a trackage of 350 miles including trackage rights over other roads and will transport coal to the mills from the mines in Indiana and Illinois.

"We are planning," said Judge Gary, "to make the city a model city. All matters affecting transportation, sewerage, lighting, water works, sanitation and so on will be gone over with the greatest care before the city is built. It will be a city in which every care will have been taken before a stone is laid to insure the comfort, health and happiness of its inhabitants.

"We have had hundreds of applications for sites in the city. There have been applications from bankers, hotel keepers and business men in many of the branches of trade. We shall sell lots, of course, but we shall only do so with restrictions in the deed that will make the city conform to our ideas."

The plant at Garry will eventually cost at least $75,000,000. It will be operated by a subsidiary company, the Indiana Steel Co.

One hundred per cent of the steel corporation furnaces are in blast.

The Wayne Furnace of Detroit, Mich., which has been run as a charcoal furnace by the Wayne Iron Co., will be taken over by a new company known as the Detroit Furnace Co. The furnace will be remodelled to use coke and make malleable, car wheel and basic iron. The name of the brand will be "Detroit." The capacity is to be about one hundred tons per day. J. C. Clutts, for many years president and general manager of the Wellston Iron & Steel Co. is the president of the new company. C. F. Fraser formerly with the Wayne Iron Co., is treasurer. Porter McMillen, formerly with the Wellston Iron & Steel Co. will be superintendent of the new furnace. Affairs are well under way and it is expected that the furnace will be in operation not later than July 1. The product will be sold by Rogers, Brown & Co.

IRON AND STEEL INSTITUTE PAPERS.

At the July meeting of the Iron and Steel Institute in London, the following are the papers that are expected to be submitted:

"The Influence of Silicon, Phosphorus, Manganese and Aluminum on Chill in Cast Iron." By E. Adamson (West Hartlepool); "The Influence of Manganese on Iron." By Professor J. O. Arnold (Sheffield); "The Relation between Type of Fracture and Microstructure of Steel Test Pieces." By C. O. Bannister, Assoc. R. S. M. (London); "Compression of Steel Ingots in the Mold." By A. J. Capron, M. Inst. Mech. E. (Sheffield); "The Manufacture of Rolled Solid Steel Car Wheels and Tires." By P. Eyermann (Wisconsin); "Brittleness in Thin Steel Sheets." By E. F. Law, Assoc. R. S. M. (London); "Chainmaking Machinery." By E. Lelong (Couillet, Belgium); "The Use of Oxygen in Removing Blast Furnace Obstructions." By C. de Schwarz (Liege); "Volume and Temperature Changes Occuring During the Cooling of Cast Iron." By Professor Thomas Turner, M. Sc., Assoc. R. S. M. (Birmingham); "The Influence of Copper in Steel." By F. H. Wigham (Wakefield).

The following reports on work carried out during the past year by holders of Carnegie Research Scholarships will be submitted:

"Hardness of the Constituents of Iron and Steel." By Henry C. Boynton, D. Sc. (Cambridge, U. S. A.); "Heat Treatment of Wire." By J. Dixon Brunton (Musselburgh); "Quaternary Steels." By L. Guillet, D. Sc. (Paris). "Influence of Carbon on Cast Iron." By W. H. Hatfield (Sheffield); "The Preparation of Carbon-free Ferro-Manganese." By E. G. Ll. Roberts and E. A. Wraight, Assoc. R. S. M. (London); "Deformation and Fracture in Iron and Steel." By Walter Rosenhain, B. A., B. C. E. (Birmingham).

Offices at Oakland.—The National Tube Co., has established its San Francisco office, 1011 Washington street, at Oakland, across the bay. All the office records were destroyed as were the residences of G. S. Garrit, manager of sales and T. W. Brooks, assistant manager of sales.

The Mead-Morrison Mfg. Co., Cambridgeport, Mass., has taken over the business of the Rawson & Morrison Mfg. Co., maker of coal handling machinery, hoisting machinery and contractors' equipment.

Metal Market

NEW YORK.

Pig Tin.—Tin has again surpassed all previous records in the matter of prices. There was a further advance in both foreign and domestic markets. In sympathy with London prices advanced in the beginning of the week but have since declined slightly. The following are today's quotations: Spot and April, 39.05 to 39.25; May, 38.90 to 39.20; June, 38.75 to 39.10; London, £178 5s and £175 15s; arrivals for the month to date, 3,058 tons; afloat, 1,933 tons.

Copper.—There has been less demand in both domestic and foreign markets but prices remain unchanged. Today's quotations follow: Lake, 18½ to 18¾; electrolytic, 18¼ to 18½; casting, 18 to 18¼; London's closing today: £85 and £82 10s. Exports for the month to date, 8,983 tons.

Lead.—There has been more activity and prices are higher. Today's closing, 5.50 to 5.60; St. Louis, 5.40; London, £18 18s 9d.

Spelter.—Refined spelter continues to enjoy only a fair demand. The market is quiet. Today's closings, 6.05 to 6.15; St. Louis, 6.00; London, £26 7s 6d.

Antimony.—The market has shown some excitement and prices are again higher. A new use has recently been found for the metal and several governments are now buying. Today's quotations, Cookson's and Hallett's, 21 to 22; other grades, 20 to 21.

CHICAGO.

April 24.

All metals are in active demand. Prices have advanced almost daily, the most sensational being pig lead which was raised $3 a ton by the association a few days ago. Lake copper is higher and is now quoted at 19¼c to 19½c in car lots, while casting copper has gone up to 19c to 19¼c for car lots. Pig tin continues its tendency upward, and is now offered at 41c in car lots. Spelter for car lots is quoted at 6⅜c to 6½c. The recent advance in lead has put the price of desilverized in 50-ton lots at 5.62½c, and for corroding at 6⅛c. Sheet zinc is unchanged at 7¾c f. o. b. LaSalle, in car lots of 600-pound casks.

Old metals are not sharing in the strong movement of the new product. Prices have declined slightly, and we quote copper wire, 16c; heavy copper, 15½c; copper bottoms, 14¾c to 15c; copper clips, 15¼c; red brass, 15¼c; red brass borings, 13c; yellow brass, heavy, 12c; yellow brass borings, 10c; light brass, 9c; leap pipe, 4½c; tea lead, 4¼c.

WONDERFUL GROWTH OF PITTSBURG INDUSTRIES

AS SEEN BY THE GERMAN AMBASSADOR AND OTHERS.

Fourth Annual Banquet of the Traffic Club.—Relations of Carriers and Shippers Discussed by Prominent Business Men.

The Traffic Club, of Pittsburg, held its fourth annual banquet at Schenley's banquet hall, Friday evening, April 20. The German ambassador, Baron Freiherr Speck von Sternburg, was the guest of honor, and 478 were gathered around the banquet tables. Louis C. Bihler, traffic manager of the Carnegie Steel Co., as president of the club delivered the address of welcome. His remarks were largely concerned with the industrial growth of Pittsburg. In part they were as follows:

"Pittsburg of a year ago was the eleventh city in population in the United States. We are now about to advance, through enacted legislation, from eleventh to sixth place, with a population of over 525,000. We have for some time held the proud position of first place in tonnage, and hope to continue there with proper encouragement and support by existing and new transportation lines. The records indicate that for 1905 the total tonnage of the Greater Pittsburg district was about 103,000,000 tons, or 134 per cent greater than in 1897, a period of but eight brief years. It is expected that the tonnage for 1906 will equal, if not exceed 1905, barring unforseen conditions. These figures are as large as the combined tonnage of any six large cities or ports throughout the world that you may select.

Immense Expenditures.

"During last and this year in the neighborhood of $40,000,000 will have been spent by various industrial concerns in the Greater Pittsburg district for land, buildings and machinery, a portion of which is for entirely new plants and a portion for enlarging existing ones, all of which will increase the consumption and output. This means that the traffic of the Greater Pittsburg district will continue to grow with proper aid by all who can and should contribute, and will require more careful attention and consideration than ever before, by both industrial and railroad officials generally. For every dollar the railroads are spending to provide increased facilities and terminals, the industries are spendfour to five dollars in increasing the size of the plants, as well as the consumption and product.

"In an address before this body a year ago, King pointed out the deficiency in certain kinds of finishing factories and the opportunities here in the Greater Industrial Pittsburg district that might be taken advantage of. In this direction, with the past year, there have been established shops for the manufacture of steel passenger coaches, steel trolley cars, and steps are being taken for the building of a plant for the manufacture of railway and other springs, to say nothing of the plans now under consummation for two entirely new iron and steel industrial towns to be located on the banks of the Ohio river, within the shade and influence of the Greater Pittsburg.

"The transportation lines of the entire country are, and rightfully should be, vitally interested in the continued traffic growth of the Greater Pittsburg district. The foreign as well as the local lines, to whose lot falls the making of through rates, should always have in mind that the rates should never be unreasonably high, but low enough and fair enough to warrant stability of commercial conditions, of which iron and steel trade is the barometer. As to the lines operating from the Atlantic seaboard and gulf, their import rates on foreign material competitive with American products should never be so low as to enable its importation at the expense of American industries.

Business Partners.

"The industrial and transporters are partners in a joint enterprise, to produce and deliver the greatest possible tonnage at a maximum of advantage and a minimum of loss. There cannot be one right for the carriers and another right for the industry—when the right is determined, it will be found to be the same for both. It may at times be hard to find, but it is certainly worth looking for."

The toastmaster, Congressman Burke, in introducing the German ambassador, spoke of the awakening in the east and of the commercial opportunities of the open door in the Orient. There are two trademarks that are better known than the trademarks of other lands, he said. These are "Made in America" and "Made in Germany." As Baron von Sternburg arose to respond the orchestra played "Die Wacht am Rhein" and the German flag arose on a gilded staff. Following it the orchestra played "The Red, White and Blue" and the Stars and Stripes were lifted on another staff.

The address of Baron von Sternburg dealt largely with the growth of Pittsburg as an industrial center since his former visit to the city in 1885.

"The last time I was here," he said, "the foundations of your modern navy had just been laid by the building of four steel cruisers, the Boston, Atlanta, Chicago and Dolphin. You will remember that every heavy forging for the hulls and guns of these vessels had been imported. Pittsburg at that time was not able to turn out even the forgings for a six-inch high power rifle for the sternpost of a 2,000-ton war vessel. But how conditions have changed! There is just as much difference between Pittsburg of 1885 and of Pittsburg of today as between the 1,700-ton Dolphin of those days and the 20,000-ton battleship which I hear congress is going to give you."

The remarkable industrial advance of both the United States and Germany in recent years he attributed to the spirit of unification of the country as a result of the terrible wars to which the two countries passed almost simultaneously, and the substitution of a national spirit for that of petty jealousies which formerly existed.

Scientific Investigation.

He spoke of the trend of scientific investigation in Germany, which, until about the time of Emperor William I, was almost entirely in theoretical lines and dealt with problems of an impractical character. Largely through the influence of this emperor, however, a new industrial era dawned for Germany through the fact that the scientific researches of the country were turned to practical subjects with the aim of building up the nation's industry. Rapid extension followed, and Germany's advance has since been speedy and consistent.

A feature of the German government which the baron declared was productive of remarkable results was the Royal Testing Office. Some 35 years ago these were originated on two distinct lines, the chemical and the metallurgical. The first occupied itself solely with the chemical and metallurgical investigations, chiefly with regard to steel and iron, chemical substances used in commerce and chemical properties of the soil. The second concentrated its

efforts on tests of materials and nature of materials. About 13 years later a commissioner was appointed for the purpose of uniting these detached laboratories. They were given a home in a modest little shop in Charlottenburg.

"The concentration of the previously scattered efforts immediately gave this new, though very modest, establishment an extraordinary impetus. At first the tests, which were of a chemical and mechanical nature, were also used to instruct students. The tests of metals were the most important, and consisted in determining the hardness and tensile strength and the behavior of metals when submitted to the pressure of certain power gases, or chemical changes which might be brought on by varying conditions, etc.

"This mechanical part soon developed into a testing laboratory for machines, and materials used in their construction, for materials employed in building and for all sorts of instruments. New departments had to be added, owing to the constantly rising demands, for instance, departments for testing oils, papers, every description of building materials, etc. The chemical section showed the same expansion, thus bringing all the resources of chemical technology to bear upon every possible practical problem.

"By stating a few examples I should like to make more clear to you the real meaning of this establishment which may be considered the cornerstone of Germany's extraordinary industrial and commercial development.

"An inventor or a manufacturer has found a problem, the solution of which, without the aid of the institution which the government has placed at his disposal, would cause him much waste of time and money and in most cases probably lead to nothing. With very moderate expenditures he submits his idea to the laboratory of research. Here it is placed into the hands of experts who are the production of best training. If the problem is submitted by a company or firm, the experts of the latter co-operate with those of the testing laboratory. The great advantages this system offers will be apparent to you all. It means the minimum loss of time, energy and money, and promises results which could be reached by no other system. It keeps the vast machinery of mills and factories in an up-to-date shape, adapting it immediately to the demands caused by evolution, inventions and discoveries, and so keeps business constantly on a paying basis if it is managed by the right heads."

At the instigation of Emperor William it was decided to remove the old plant to Grosslichterfelds, near Berlin, where it is now installed in magnificent quarters.

"What both are countries need, gentlemen," said the baron in conclusion, "and will need more and more every year, if we do not want to damage the work we have built up, is foreign markets. These we shall easily find if we follow the good words of the lamented President McKinley, that no nation can be a seller if he is not a buyer."

B. S. Caldwell, vice president of the Delaware, Lackawanna & Western Railway Co., spoke of "Inter-relations, Carriers and Shippers." He discussed certain problems which confront both the carrier and the shipper, pointed out the remarkable degree to which their interests are interwoven, and declared that in this business, as in others, honesty and integrity must be stood for. "Irregular methods," he stated, "are always demoralizing to those who practice them, as well as to the interests they represent. It is only ignorance or indifference that believe in the theory that the easiest way is the best. Ease has no part in the strenuous life; it makes no contribution to progress. It may follow in beaten tracks, but never marks the way to new and untried fields of activity or of usefulness.

"Secret practices are usually evil practices and the railway business is no exception to that rule. On the other hand, it is a well known law that evil cannot withstand the light of day; publicity is and must be an unfailing remedy for evil practices, both corporate and individual, and is just as much needed to restrain the shipper as the carrier. There will always be questions of discrimination between localities and gateways, which are natural because of the fluctation of trade centers and general business conditions. These are usually defensible because of varying interests and honest differences of opinion and are subject to remedial treatment as between the carrier and shipper, but discrimination between individuals by secret practices, is indefensible either as to good public policy or good business morals."

The guest list numbered many prominent in iron, steel and railroad industries of Pittsburg and of the east.

LATE RAIL SALES.

New York, April 25.—Late rail sales include the following: Lima & Toledo Traction Co., 13,000; Baltimore & Ohio 3,000 additional; Pacific Electric, 2,000 additional; making a total of 14,000; Hocking Valley, 3,500; T. & O. C., 3,000; Indianapolis Western, 2,000.

OBITUARY.

Henry Ward Beecher Howard died April 16 at his home in Brooklyn, N. Y., at the age of 57. He was a graduate of Yale, and did newspaper work for a number of years. At the time of his death he was assistant secretary and treasurer of the American Institute of Mining Engineers.

Horace F. Brown, a mining engineer of national reputation, an authority on mining and metallurgical subjects and an inventor of several widely used milling appliances, died at Chicago, April 15. Among his inventions were a coal mining machine, a system of ore furnaces, water jacketed smelting furnaces and a system for the manufacture of carbonic acid gas from lime rock. He was one of the organizers of the Western Iron Works Corporation, at Butte, Mont.

Francis H. Saylor, president of the Philadelphia Bridge Works, died at Germantown, Pa., April 12, at the age of 62. He was a graduate of Amherst College and of Rensselaer Polytechnic Institute. For a time he engaged in railway work, superintending the construction of the Bound Brook railroad and later the Pittsburg & Lake Erie. He was also at one time member of the firm of Cofrode & Saylor, bridge builders at Pottstown, Pa.

Work will be Started.—Work is to be started within a few days on the blast furnace which Corrigan, McKinney & Co. are to erect at Black Lake Junction, Indiana county, Pa. Announcement that this furnace was to be built was made some months ago, but construction was postponed until weather conditions were more favorable. The furnace will have a capacity of about 500 tons, and a battery of coke ovens will be erected to work on the extensive coal interests of the company at that point. The contract for the furnace has been let to the Pennsylvania Engineering Works, of New Castle.

The Hill O'Meara Construction Co. will erect the sixteen-story building at Tenth and Olive streets, St. Louis. The Jones & Laughlin Steel Co. will furnish the steel, about 6,000 tons. Between 2,000 and 2,500 tons will be required for the sixteen-story Bank of Commerce building in that city. The contract has not been let.

An explosion of dust in a mine of the Colorado Fuel & Iron Co., in the Trinidad district, April 22, resulted in the death of over a score of miners, about one-half of the force employed at the time.

PERSONAL.

William Best, San Francisco agent of the Jones & Laughlin Steel Co., was uninjured in the San Francisco earthquake.

C. P. Wheeler, vice president and treasurer of Pickands, Brown & Co., Chicago, has returned from his trip abroad.

L. K. Hirsch, president of the L. K. Hirsch Co., has arrived home in Philadelphia after an extensive trip through Europe and the east.

Dr. G. G. Revay, of New York, and several members of the staff of the United States Steel Corporation, are in Europe on a tour of inspection.

James Gayley, first vice president of the United States Steel Corporation, has received the degree of Doctor of Science from the University of Pennsylvania.

Hollinshead W. Taylor, of the N. G. Taylor Co., Philadelphia, has returned from an extended trip of several months through Mexico, California and the west.

L. R. Lemoine has been made general manager of the New Jersey Zinc Co., 71 Broadway, New York, and R. M. Catlin superintendent of mines at Franklin Furnace, N. J.

Andrew Carnegie is to receive the degree of Doctor of Laws from the McGill University, Montreal on May 1, when he will address the Canadian club, of that city.

William A. Heartt as district manager is in charge of the branch office recently opened at 700-701 Columbus Savings & Trust Co., Columbus, O., by the Power & Mining Co., Milwaukee, Wis.

George H. Blakeley has been made structural engineer of the Bethlehem Steel Co., South Bethlehem, Pa. He was formerly connected with the Passaic Rolling Mill Co., Paterson, N. J.

Andre Andzora, who is temporarily acting as Mexican minister of mines, filling the place made vacant by the recent death of Blas Escontria, may be appointed to that position permanently.

W. L. Brown, president of the American Ship Building Co. and of Pickands, Brown & Co., Chicago, who was stopping in San Francisco during the earthquake and fire there last week, is reported safe and on his way home.

C. Frank Schwep has been made general purchasing agent of the Ingersoll Rand Co., with headquarters at 11 Broadway, New York. For the past 13 years he has been at the head of the purchasing department of the Ingersoll-Sargeant Drill Co., being located at the shops at Easton, Pa., and Phillipsburg, N. J.

Vincent Riga, manager of Fenwick Freres & Co., Paris representatives of John F. Allen, is spending several weeks at the Allen plant familiarizing himself with the Allen riveter. The tool has found such favor abroad that a branch office is to be opened in Brussels where it will be carried in in stock.

John N. Richardson has been appointed superintendent of the Peck-Williamson Foundry, Wellston, O., succeeding to the place made vacant by the death of his father, George O. Richardson. He is a graduate of the Ohio State University.

Chas. Wainwright has begun as superintendent of the Bury Compressor Co., Erie, Pa. He was formerly with the Ingersoll-Sargeant Drill Co., but for the past three years has been superintendent of the Blaisdell Machinery Co., Bradford, Pa.

D. T. McCleary, assistant chief chemist at the Ohio works of the Carnegie Steel Co., Youngstown, has tendered his resignation, effective May 1, to become chief chemist at the new steel plant of the Youngstown Sheet & Tube Co.

William H. Parish has been appointed night superintendent of the shops of the Brown Hoisting & Conveying Machinery Co., Cleveland. Mr. Parish is a graduate of the Stevens Institute of Technology, and has been connected with the National Tube Co., of McKeesport for some years.

L. P. Mercer, Jr., some time ago associated with the Chicago office of Rogers, Brown & Co., has become identified with the sales department at the Chicago office of the DeCamp Brothers & Yule Iron Coal & Coke Co., of St Louis, assisting A. B. Stevenson, the resident manager.

JOINS MESTA STAFF.

The Mesta Machine Co., Pittsburg, announces an important addition to the staff in charge of its Corliss engine department in the person of Warren Wilder, for the past seven years with the Allis-Chalmers Co., Milwaukee. Mr. Wilder graduated in 1893 from the Cincinnati Technical School, a part of the University of Cincinnati, then spent a half dozen years with one of the large engine builders of that city and served a year as chief draughtsman of the Fulton Iron Works, St. Louis. When he entered the employ of the Allis-Chalmers Co. his first experience was in the engine room, but he was shortly advanced to assistant to the chief draughtsman, and had charge of estimates for engine building. September, 1905, he entered the power department, handling all the estimating and correspondence work in the sale of large special engines. The working drawings for the New York subway engines as well as for the "big reliable" engines at the St. Louis exposition were examples of his skill. In his new connection Mr. Wilder will be assistant to Mr. Hamkens, in charge of the Corliss department for Mesta. The latter is an 1883 graduate

H. HAMKENS.

of the Polytechnic Institute at Hanover, Germany. The following six years were spent with various ship and engine builders in London; then he came to America and for eight years was engaged in similar work, serving for a time as chief

WARREN WILDER JR.

draughtsman for the Gas Engine & Power Co., New York, and as mechanical engineer for the Lane & Bodley Co., Cincinnati. From 1897 to 1902 he was mechanical engineer and designer for the E. T. Allis Co., Milwaukee, and during the last five years has worked almost entirely on large blowing engines and stationary engines, devoting his attention particularly to vertical compounds and horizontals and verticals.

JONES & LAUGHLIN NEW No. 14 STRUCTURAL MILL.

THE LARGEST ROLLING MILL IN THE WORLD.

Records Broken in Its Construction.

After a remarkably short period of erection, the new structural steel mill of the Jones & Laughlin Steel Co., Pittsburg, is in operation.

A location at the southwest corner of the present South Side plant was selected, partially bounded by Carson and 25th streets, and adjoining No. 12 structural mill. During the initial preparation of the plans by the Jones & Laughlin Steel Co., ground was broken on October 2, 1905, and work begun on the heavy concrete foundations. The new mill occupies a space 320 feet in width by 490 feet in length, and the building was fabricated by the Fort Pitt Bridge company after designs submitted by the Jones & Laughlin Steel Co.

The accompanying illustrations show the various stages of construction and convey some idea of the rapid advances made in the short periods indicated.

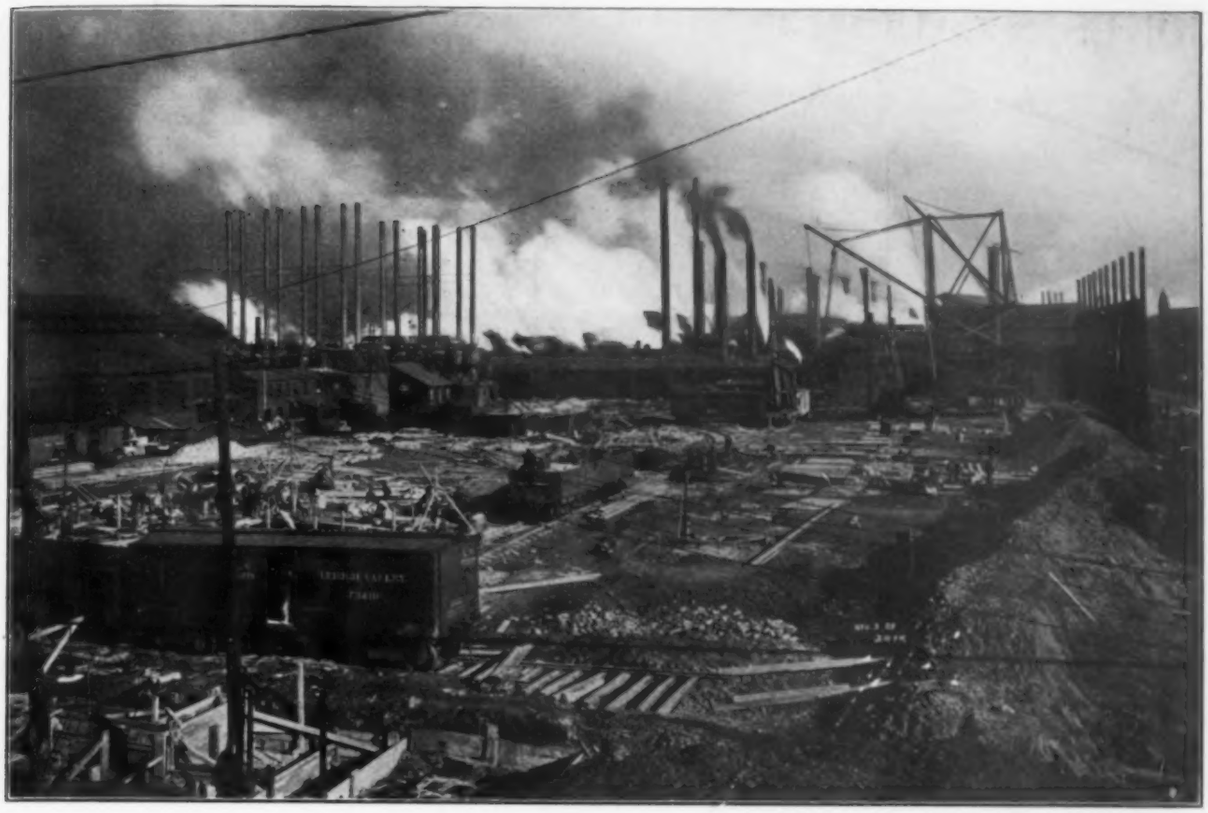
Owing to the congested condition of the locality and the scarcity of available property in allowing for the growth of the plant, many new and novel space economizing features have been planned and worked out, one of which was the necessity of resorting to the inauguration of a subway system for the narrow gauge tracks for transportation of the steel from the three blooming mills to the finishing mills. Incidentally it has been found to be so great a success that the system will be extended to the supplying of all steel to the new mill.

The structure consists of one large mill building containing the furnaces, roughing and finishing mills and roll racks, and part of the hot bed; a hot bed building; a shear building; a stock building between the hot bed building and the shear building; and a bloom and shipping yard, all of which are fully covered by crane service. The cranes, thirteen in number, were built by the Morgan Engineering Co., and are equipped with Westinghouse 220-volt direct-current crane motors, controlled by the Cutler-Hammer system of control.

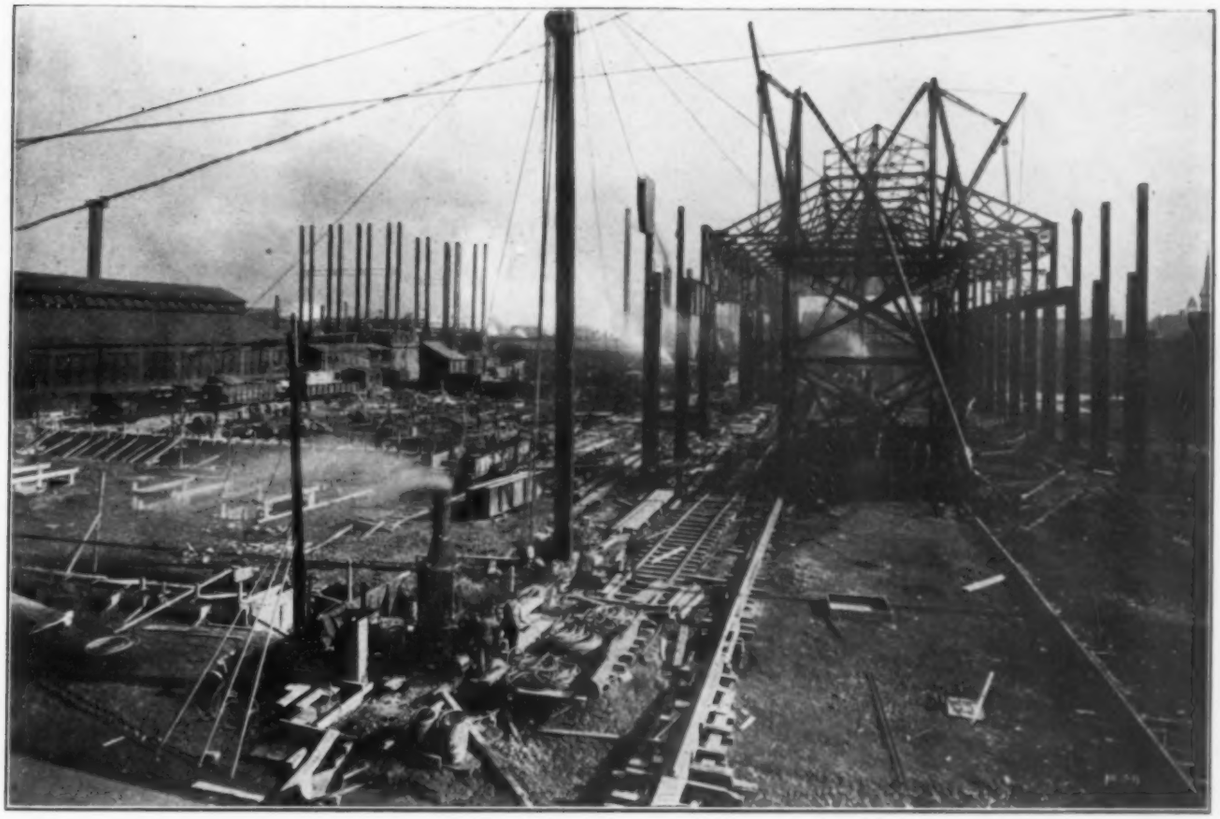
Billets from the blooming mills are conveyed to the 4,000-ton capacity billet yard by means of two narrow gauge tracks in a subway with spurs suitably located along its length. The billet yard is served by two 20-ton electric cranes of 32 feet 6 inches span each. The crane ways are each provided with a pocket at the back of the furnaces for storing blooms preparatory to charging into the furnaces. From these pockets the two jib cranes lay one bloom at a time on the charging table back of the furnaces.

The furnace charger consists of one large hydraulic cylinder back of each

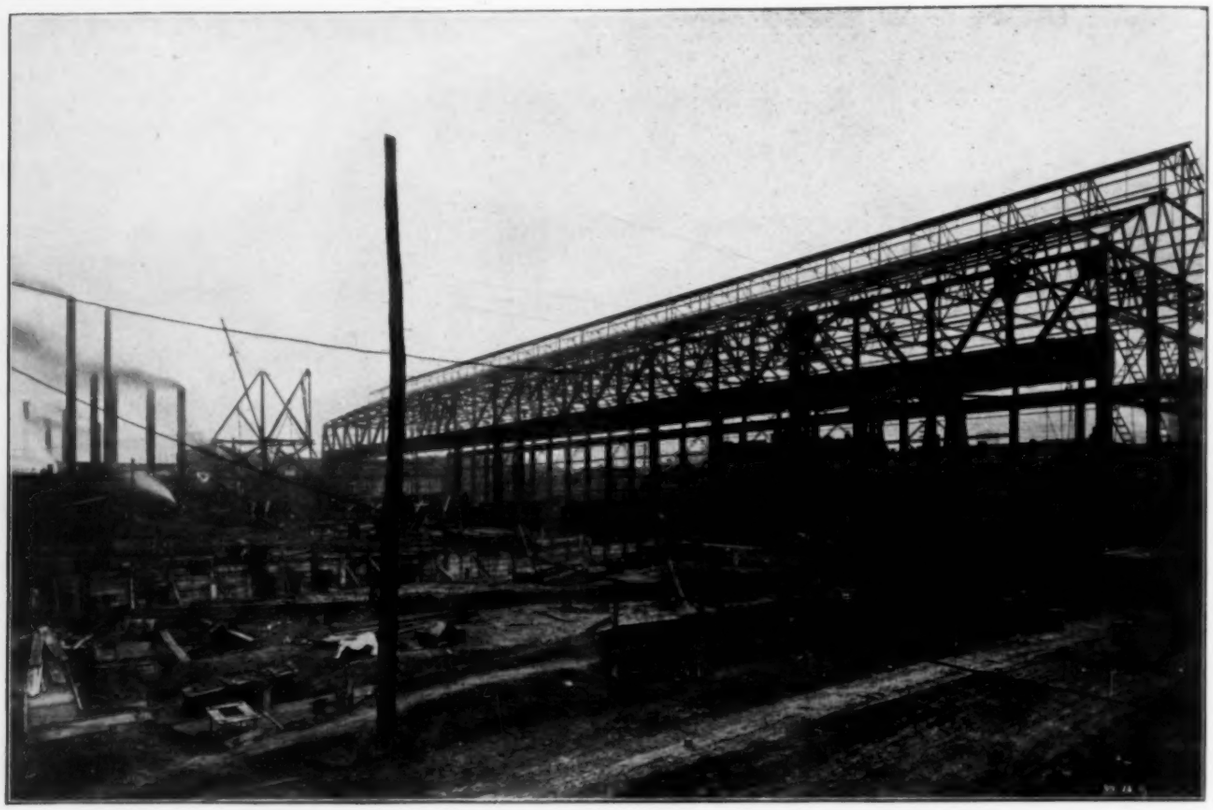
OCT. 5, 1905.—BREAKING GROUND FOR NEW STRUCTURAL MILL, JONES & LAUGHLIN STEEL CO.



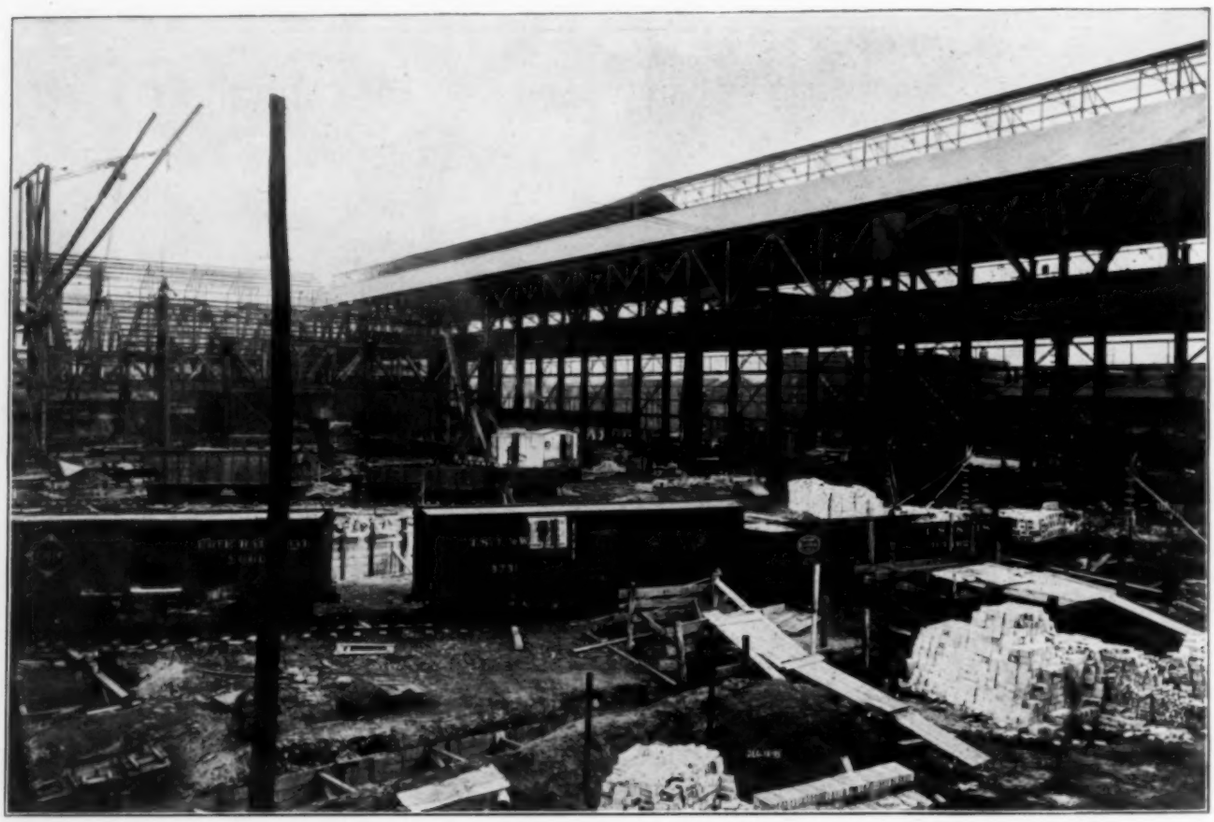
NOV. 2, 1905.—ONE MONTH'S WORK ON NEW STRUCTURAL MILL, JONES & LAUGHLIN STEEL CO.; UNLOADING STRUCTURAL MATERIAL.



NOV. 17, 1905.—INITIAL STAGES OF CONSTRUCTION, NEW STRUCTURAL MILL, JONES & LAUGHLIN STEEL CO., MAIN MILL BUILDING.



NOV. 24, 1905.—COMPLETED FABRICATION OF MAIN MILL BUILDING, NEW STRUCTURAL MILL, JONES & LAUGHLIN STEEL CO. TRAVELER AT WORK ON HOT BED BUILDING.



DEC. 12, 1905.—SHEATHING NEARLY COMPLETED ON MAIN BUILDING. FABRICATION COMPLETED ON HOT BED BUILDING AND TRAVELER WORKING ON FABRICATION OF STOCK BUILDING, NEW STRUCTURAL MILL, JONES & LAUGHLIN STEEL CO.

DEC. 22, 1905.—INSTALLING FINISHING TRAIN AND ENGINE. FOUNDATIONS COMPLETED FOR TABLES BETWEEN TRAINS, RUNOUT TABLE FROM FINISHING ROLLS TO HOT BED IN POSITION, NEW STRUCTURAL MILL, JONES & LAUGHLIN STEEL CO.

DEC. 29, 1905.—ENGINES PRACTICALLY ERECTED AND SOME STATION TABLES IN POSITION, NEW STRUCTURAL MILL, JONES & LAUGHLIN STEEL CO.

furnace with the front end of the ram carried by supporting beams acting as guides to keep it in line. The ram acts on the billets through movable dogs so hinged that on the return stroke of the plunger there will be no interference with any movement of the blooms on the table.

The furnaces, three in number (with provision made for a fourth), were built by the Alexander Laughlin Co., but have been modified somewhat from their usual designs to meet the peculiar requirements of the case. One of the principal modifications is the arrangement of skid pipes on a ten-degree slope from the charging end of the furnace to the point of discharge. This was made necessary to enable the handling of thin slabs in the furnaces. The inside dimension of each furnace between the walls is 17 feet, enabling the operator to run one or two rows of billets. Each furnace is provided with five skid pipes. Natural gas serves as fuel for all three furnaces.

The furnaces deliver at the discharge end onto a common table, which leads up to the tilting table at the first stand of the mill. All tables were built by the Morgan Engineering Co., and are operated by Westinghouse 500-volt direct current railway motors, connected to a 220-volt circuit.

The hot billet leaving the furnace is conveyed to the No. 1 or roughing set, equipped on both sides with a tilting, traveling electric table, operated through Cutler-Hammer controllers. In the No. 1 set of rolls the bloom is given from one to five passes, depending on the section to be rolled.

The piece after leaving No. 1 set of rolls, as shown in the accompanying plan view of the mill, is carried on a stationary table A, and enters No. 2 set on the top pass. After leaving the top pass of No. 2 set the piece falls down onto the table C, where the rollers are moving in a direction towards No. 2 set, and is carried in on the bottom pass without any handling. The piece then travels from No. 2 set by table D into the top pass of No. 3 set, thence falling onto table F, the rollers of which are revolving in a direction towards No. 2 set. The piece is carried into the bottom pass of No. 3 set whence it travels along a stationary table G into the finishing set No. 4, and thence by table H out onto the hot bed.

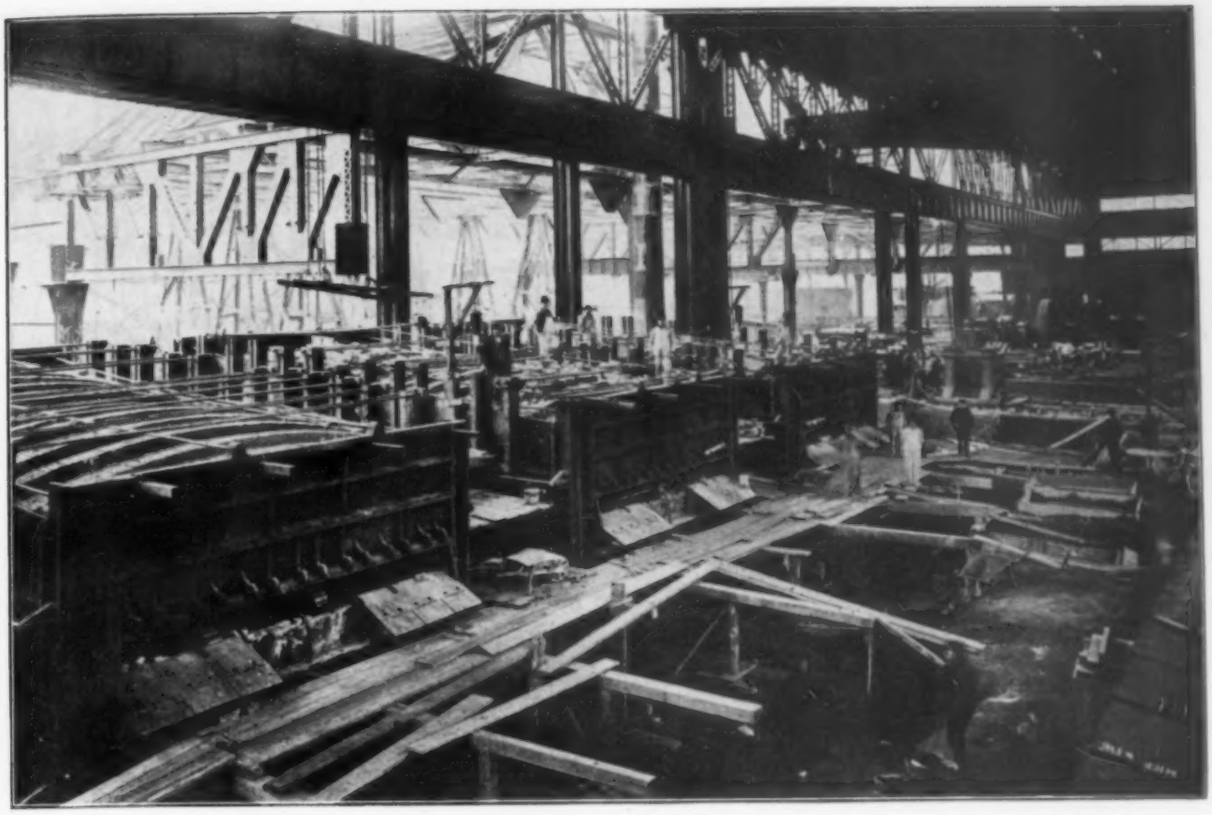
A novel feature of this hot bed is that it is carried on structural material throughout. This gives free access beneath the bed for the care and oiling of the machinery, as well as for the removal of scale.

As the piece is delivered by the roller table leading from the finishing pass onto the hot bed, a hot push-off shoves the bar over onto the hot bed rails, a distance of about six feet from the table. This places it over the tumblers so that if it is a channel or a beam which must be turned up on edge, it can be handled at once in this way. If it is an angle, it is handled directly by the cold pull-over, operated by a number of wire ropes on drums in the usual way.

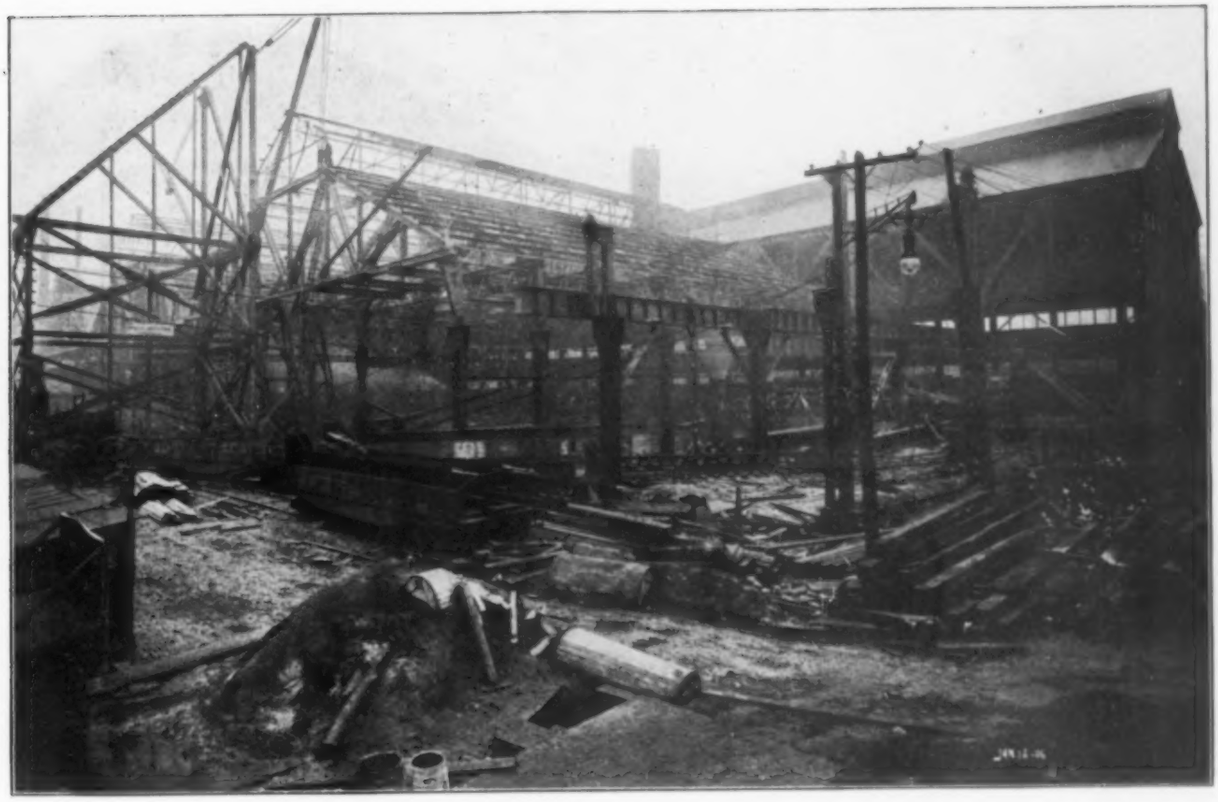
A cold pull-off is provided at both the hot side and the cold side of the hot bed. These two cold pull-offs are necessitated by the use of two straightening machines in connection with the mill, one being required for each machine.

The roller straightening machines are both driven by one Corliss engine, each being provided with a change gear ar-

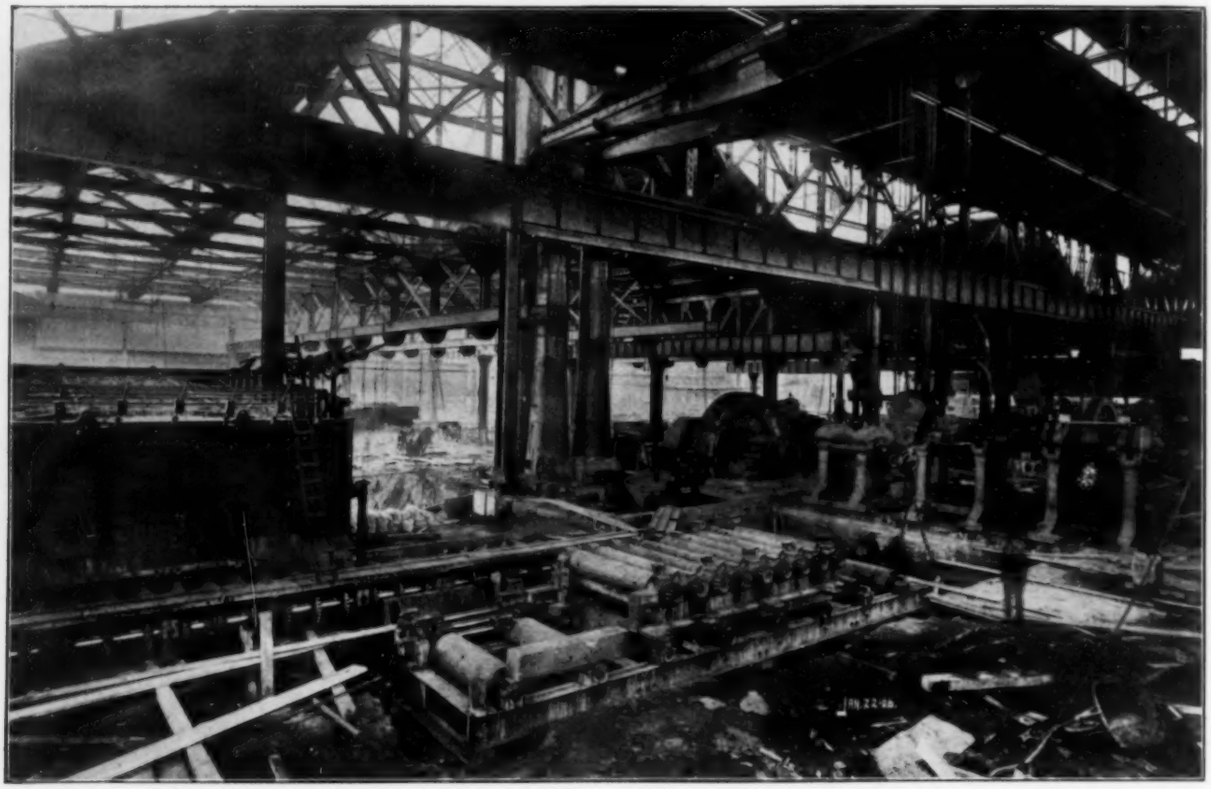
JAN. 5, 1906.—GENERAL VIEW OF MILL, SHOWING PROGRESS FROM FURNACES TO HOT BED, NEW STRUCTURAL MILL, JONES & LAUGHLIN STEEL CO.



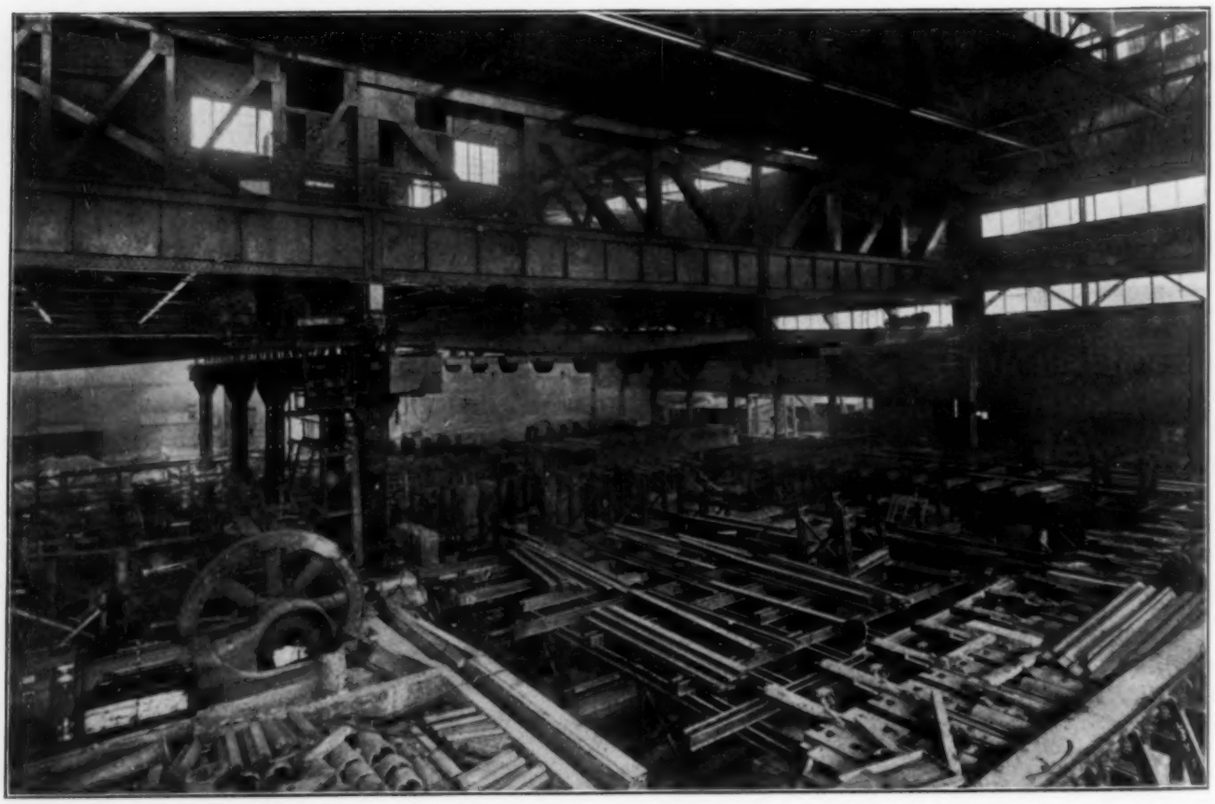
JAN. 5, 1906.—FURNACES IN COURSE OF CONSTRUCTION, NEW STRUCTURAL MILL, JONES & LAUGHLIN STEEL CO.



JAN. 12, 1906.—MAIN BUILDING COMPLETED, HOT BED BUILDING COMPLETED. FABRICATION OF STOCK AND SHEAR BUILDINGS, COMPLETED. WORK BEING DONE ON CRANE-WAYS. NEW STRUCTURAL MILL, JONES & LAUGHLIN STEEL CO.



JAN. 22, 1906.—ROUGHING TRAIN BEING ERECTED. THIRD FURNACE COMPLETED WITH ROLL TRAIN IN FRONT. NEW STRUCTURAL MILL, JONES & LAUGHLIN STEEL CO.



JAN. 30, 1906.—GENERAL VIEW OF HOT BED IN COURSE OF CONSTRUCTION, NEW STRUCTURAL MILL, JONES & LAUGHLIN STEEL CO. NOTE STRUCTURAL STEEL FRAME WORK ON WHICH RAILS ARE CARRIED, WITH STRAIGHTENER ENGINE AT LEFT, AND ALSO THE SUSPENDED CRANES AND GIRDERS GIVING A LONG SPAN FOR HANDLING OF LONG SHAPES.

JAN. 30, 1906.—GENERAL VIEW OF FURNACES, ROUGHING AND FINISHING MILL AND TABLES, NEW STRUCTURAL MILL, JONES & LAUGHLIN STEEL CO.

FEB. 5, 1906.—FOUNDATIONS FOR NO. 2 STRAIGHTENER TABLES, NEW STRUCTURAL MILL, JONES & LAUGHLIN STEEL CO.

rangement so that the delivery speed of the rolls can be varied from 130 feet to 400 feet per minute.

After passing through the roller straightening machine, the finished bar is delivered onto a roller table which stands in the middle of an arrangement of skids. Pull-overs are so arranged that the bar can be shoved either way on a roller table feeding into a hydraulic shear, or if not sufficiently straight for shipment, can be dropped into a pocket from which it is elevated by overhead cranes and deposited on the roller table leading into a gag press.

The four roller tables feeding the shears, one on each side of the tables leading out of the roller straightening machines, are wide enough to fit the full width of the shear knives, i. e., 3 feet 6 inches. This makes it possible to shear four pieces of 6 inch by 6 inch angle, or several flats, at one time. The equipment of these shears also includes two side clamps, in order that it may be possible to shear two beams or two channels at the same time. These shears, built by the United Engineering & Foundry Co., are provided with a steam intensifier to insure a sufficient positive shearing force.

A branch of the subway leads directly in front of the shears, so that all scrap may be dropped directly from the machines into a box car on the narrow gauge spur tracks below. As each car is loaded, the scrap is hauled to a convenient point under one of the shipping cranes and its contents transferred into a broad gauge car. Short pieces of material three feet and under, can be handled in the same manner.

After passing through the hydraulic shears, the material is carried out on roller tables provided with a kick-off which pushes the material into a pocket and assembles it in a crane lift. These shear tables are covered by three overhead traveling cranes, the girders being suspended, leaving a clear space underneath for the handling of bars 120 feet in length. The finished product is carried directly from these tables and placed on broad gauge cars for final shipment.

The mill equipment includes a gag press, provided for straightening any bars which, after passing through the roller straighteners are found to be unsalable, and also for re-straightening any material which happens to become bent during the handling by the cranes.

Supplementing the work of the hydraulic shears, a 52-inch cold saw, built by the United Engineering & Foundry Co., and driven by a 220-horsepower direct-current Westinghouse motor, has been installed between the hot bed building and the stock building.

Two broad gauge tracks leading in a longitudinal direction under the 10-ton shipping cranes, constitute the shipping facilities. The shipping cranes run transversely to the cranes covering the hot bed, the stock building and the shear building, and are at an elevation sufficient to permit the transferring of the material from the transverse cranes to the shipping cranes.

The craneways in the shear building are carried out half way across the longitudinal shipping craneway, so that the shear cranes can deliver material directly from the shears onto the cars without necessitating their transfer to the shipping cranes.

A large scrap shear has been provided in the corner of the hot bed building for reducing cobbles and large scrap to sizes suitable for open-hearth charging boxes. The shear is driven by a 120-horsepower Westinghouse type S motor.

The design of the whole mill is exceptionally heavy. This has been done with a view to reducing the repair costs, as well as to produce a stiff mill on which the sections could be well maintained. It is a 26-inch mill with rolls 66 inches long. The rolls when new are 28-inch diameter and it is the intention to work them down to a 24-inch diameter. The mill will roll angles 4 inch by 4 inch to 8 inch by 8 inch, inclusive; beams and channels from 5 inch to 12 inch, inclusive, and flats from 6 inch to 14 inch, inclusive.

The engines driving the roughing and finishing trains were built by the C. & G. Cooper Co.; are of the Corliss type and especially designed for heavy duty rolling mill service, working at a steam pressure of 150 pounds with a maximum in the low pressure cylinder of 75 pounds.

The larger engine intended for driving the roughing train, is 42-inch diameter of high pressure cylinder, 74-inch diameter of low pressure cylinder, with a 54-inch stroke. An 18-foot cast iron fly wheel weighing 175,000 pounds, furnishes the requisite inertia for carrying the engine over the load points.

The engine driving the finishing mill, is 38-inch diameter of high pressure cylinder, 66-inch diameter of low pressure cylinder, by 48-inch stroke. The fly wheel is 18 feet in diameter, weighing 140,000 pounds.

The installation includes a third engine, 22-inch high pressure cylinder, 40-inch low pressure cylinder, by 42-inch stroke, for driving the two straightening machines. A 60,000 pound 16-foot cast iron fly wheel, balances the comparatively light loads placed on this engine.

The governors of all three engines are equipped with speed changing devices for obtaining a speed range of from 60 to 110 revolutions per minute. Engine lubrication is automatic throughout.

The convenient storage of rolls was one of the problems met with. On account of the great value of space, roll racks were placed in a series of pits, six feet in depth, along the side of the mill building. Here the rolls are racked six high, and at the same time their bulk does not shut out the light, due to their position along the Carson street side of the mill.

A prominent and noteworthy feature of the mill installation is the complete crane service, covering a total of thirteen cranes. The main or mill building is served by two 80-ton cranes spanning a distance of 89 feet 7 inches. These cranes were built especially heavy, as it is planned to change mill train rolls by lifting the housings from the shoes, a total weight capable of taxing the full load capacity of the crane.

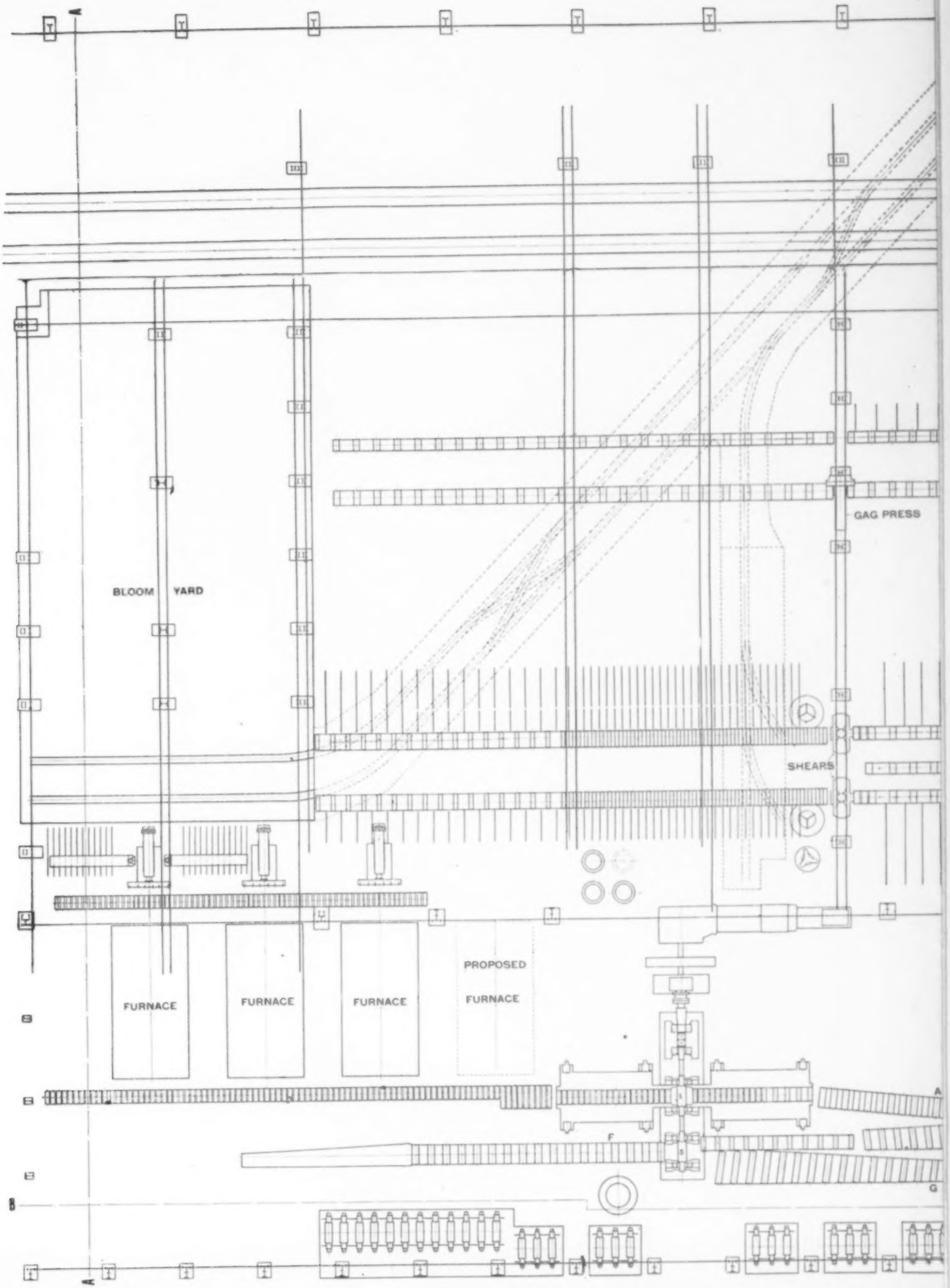
The billet yard is covered by two 20-ton furnace charging cranes. The hot bed building is served by two 10-ton cranes, 62 feet 5 inches span each. The middle girder is suspended, leaving a free span over the hot beds of 130 feet. The stock building, between the roller straighteners and shears, is provided with one 15-ton and one 10-ton cranes, each of 67 feet 3 inches span, giving a total span under the suspended middle girder of 140 feet. Two 10-ton cranes of 31 feet 9 inches span each and one 10-ton crane of 66 feet 9 inches span, cover the shear building. The suspended middle girder is made use of to give a clear span of 140 feet.

The shipping yard is provided with two 10-ton cranes spanning 74 feet 4 inches.

A Bath for Blueing Steel.—A bath for blueing steel, and which does not require a special furnace is given by the *Brass World*. The solution is as follows:

Water	1 ounce.
Hyposulphite of soda	2 ounces.
Acetate of lead	2 ounces.

The acetate of lead and the hyposulphite of soda are dissolved in the water. The solution is then heated to the boiling point. When nearly boiling, the solution is ready for use. The steel may be blued without being copper or brass plated, but a slight film of copper or brass enhances the brilliancy of the color. Steel either bare or plated must be uniformly clean before it goes to the bath, otherwise, a mottled appearance will result. After the steel is cleaned, it is dipped into the hot bath. The first color is golden, changing in a moment to dark red, and finally, resulting in blue. The process requires but a few seconds, and it is necessary to watch it carefully, in order to remove the article at the proper time. When the required tint has been produced, the article is rinsed and dried, and then lacquered.


BLOOM YARD
GAG PRESS
SHEARS
FURNACE
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PROPOSED
FURNACE

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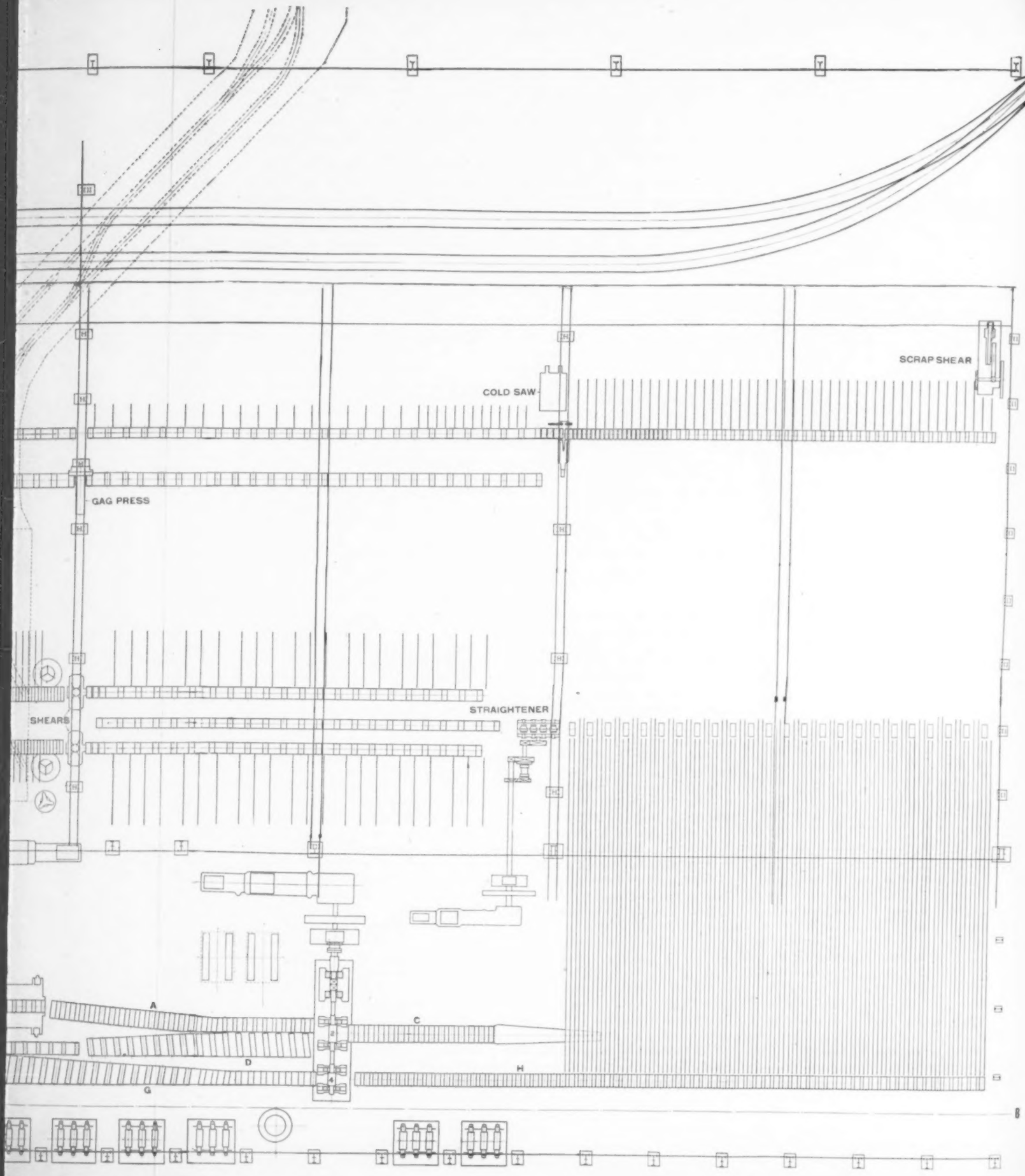
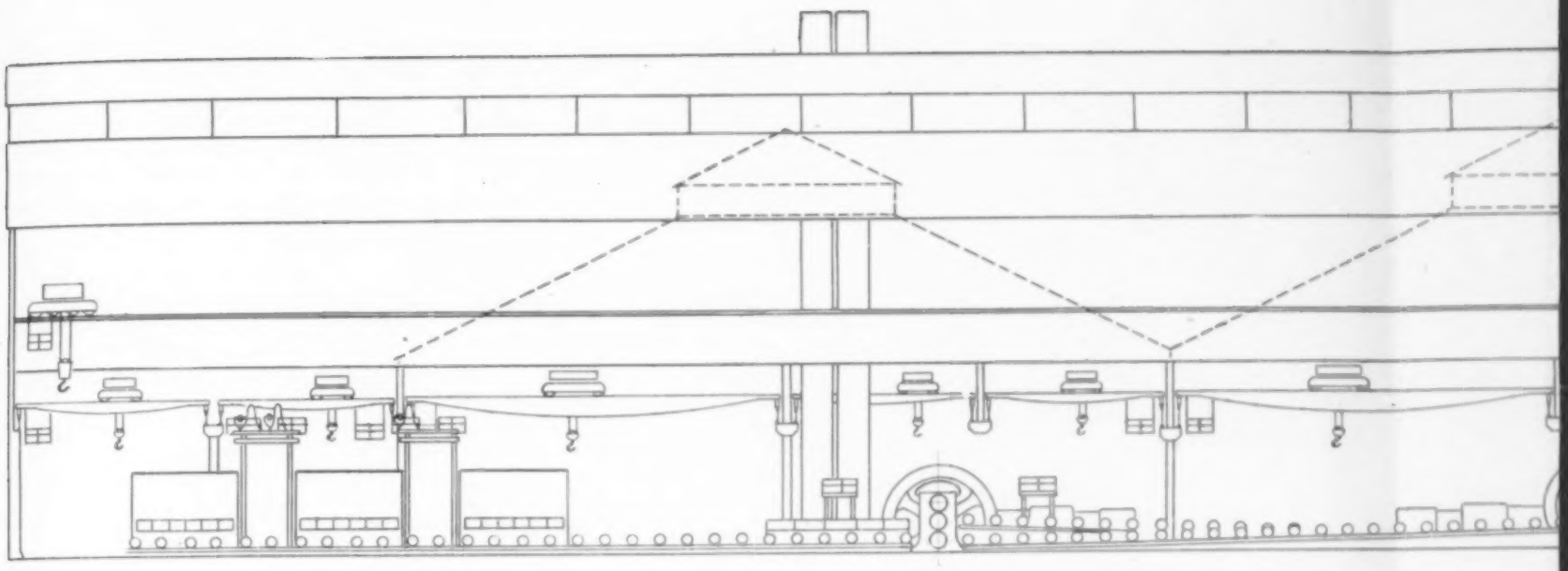
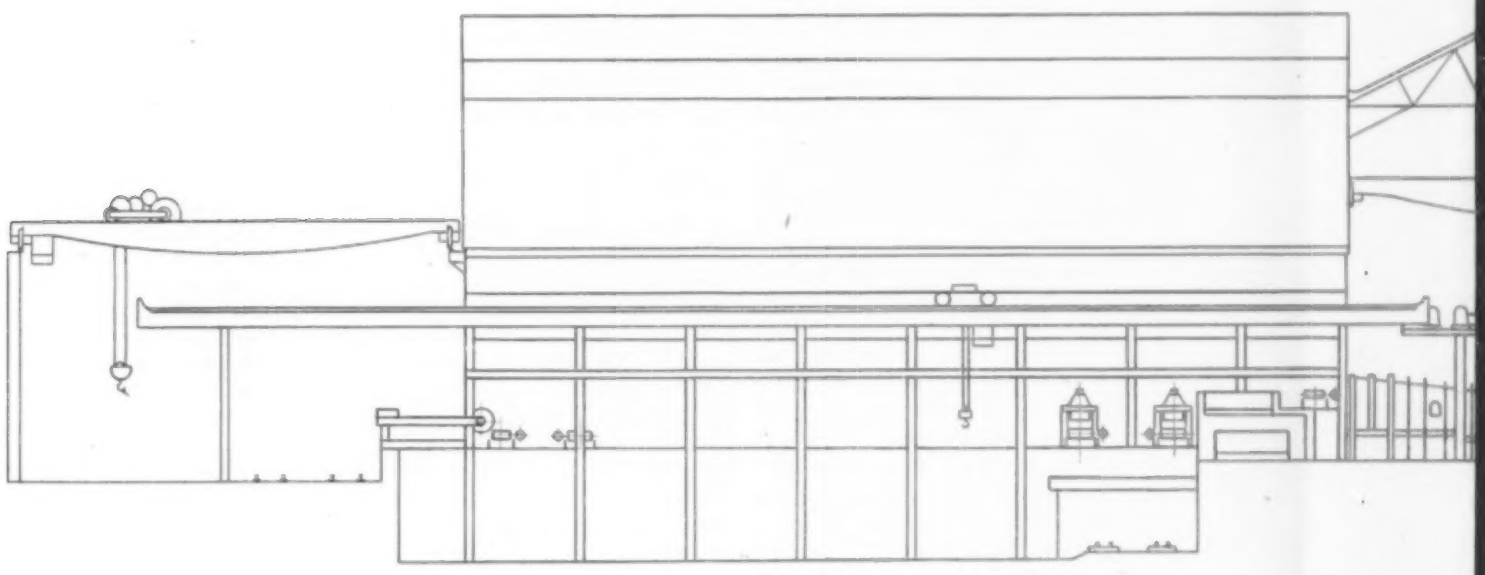


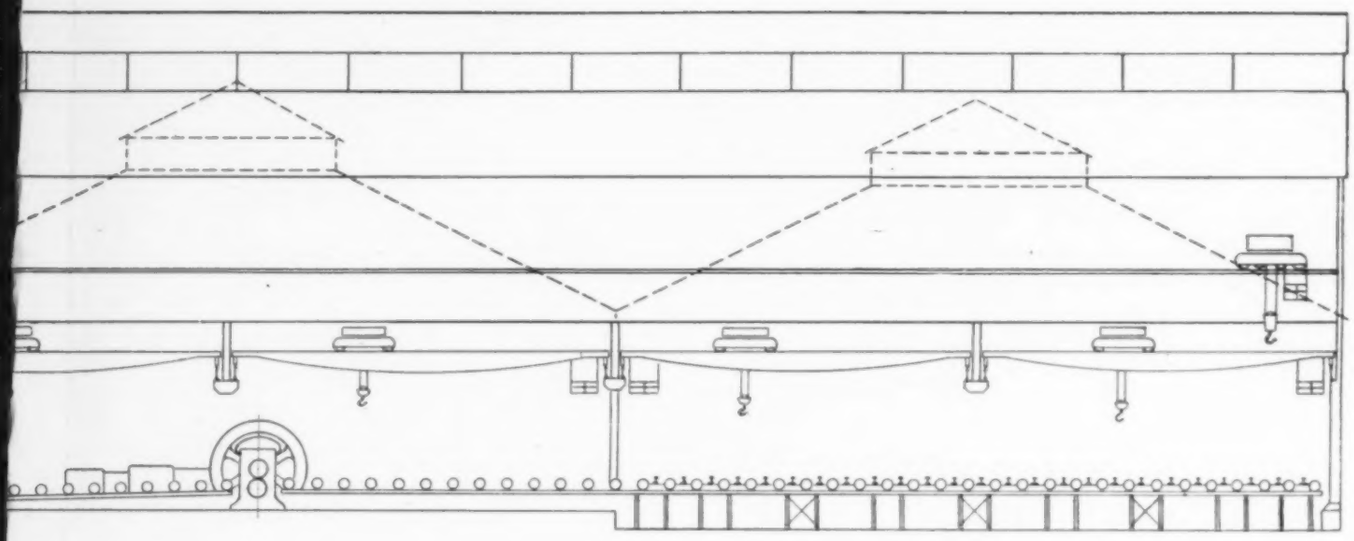
GROUND PLAN OF MILL



SECTION B-B



SECTION A-A



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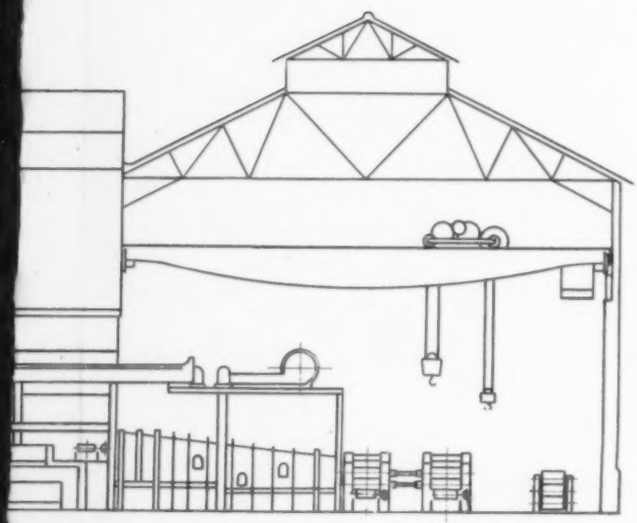


THE NEW No. 14 STRUCTURAL MILL OF THE JONES & LAUGHLIN STEEL CO., PITTSBURG.

SCALE: 1 INCH = 32 FEET, 9 INCHES.

SUPPLEMENT TO THE IRON TRADE REVIEW,
APRIL 26, 1906.

W. B. Cowles on the Metric System.

Mr. W. B. Cowles, vice president of the "Long Arm" System Co., of Cleveland, appeared before the committee on coinage, weights and measures of the House of Representatives on April 5, and spoke in opposition to the compulsory metric bill now under consideration by that committee. Mr. Cowles was representing officially the National Metal Trades Association, being chairman of the special committee appointed by that association to oppose the bill. He also represented the Manufacturers' Association of Cleveland. Mr. Cowles, in opposition to the bill, spoke in part as follows:

"I have no fine-spun arguments, and I am not going to bother you with a lot of figures. Theories don't bother me in this matter one little bit; theorists pester me awfully. I am up against practical conditions. I am a government contractor and sub-contractor on naval work, ship fittings and parts of war ships. This bill says 'shall.' It does not say 'may.' This bill makes it mandatory on the navy department to use the metric system exclusively, and I am going to speak right on that point. I don't know a thing about other departments. This bill makes it mandatory on the navy department to use metric measures, the metric system, on all government work after a certain date, which date is near enough to make a contractor shiver.

"If the bill means what it says in plain English terms, then the navy department, through its principal mechanical bureaus (the bureau of construction and repair, the bureau of steam engineering and the bureau of equipment) is forced to use metric measurements in all government work under its supervision after the date specified, and if it is a question of interpretation, problematic interpretation, of how the mandates of this bill will be carried out by the naval officers in those bureaus, I want to say that I can interprete the meaning and forecast the action of these officers, just as well as any man here in this room, because I am bone of their technical bone, and blood of their blood, born of the same alma mater and trained up with them, a graduate of the Naval Academy. I know how they form their opinions and what is in the backs of their heads, and furthermore, I know what their idea of duty is. So, I can say without hesitation that those officers are going to obey the law to the letter. No civilian knows what the military or naval idea of duty is, unless he has had a chance to learn it in a serious war or has had it drilled into him in one of the 'regular' services. Their idea of duty will make these officers interprete that law literally and carry it out literally, and 'let the deluge come' if it will. There is no question about that.

"I am talking about the condition which is to be up against me hard. When they carry out the terms of that bill, if it becomes a law, it puts my company and my stockholders up against this condition. I don't care for the arguments of the theorists to the contrary. I don't want any 'physicist' or any professor or any astronomer or astrologer from the skies to tell me what will happen in my own works. I will tell him. I don't want any government official or sub-official from our painfully new department of commerce and labor or from the naval observatory to tell me what it will cost me. I will tell them. They are not in a position to tell me. They don't hold any brief to argue that case. They don't know. And I have noticed in sitting here and listening to these arguments, pro and con for the last two days, that the two sides cannot get together. The theoretical man, the physicist and the practical manufacturer in metals cannot get together any more than the Mohammedan and the Hindoo. There is no common ground upon which they can stand, unless by chance the physicist and the theorist has in his development gone on and become the practical man of affairs.

"The great majority of my work is government business, war vessel work and automobile parts, and as to how it will hurt me, I manufacture my goods to standards. They are now manufactured to complete working drawings submitted and approved by the navy department, and, in many cases, the fits and measurements go down to a thousandth of an inch for interchangeability. The navy department will do one of two things. It will either demand that those drawings and specifications be carried out on the basis of the inch transformed to the metric millimeters in a cumbersome, awkward fraction of some kind—and that is a thing that I cannot put into my works and I don't propose to argue about it, but simply to tell you the facts that I cannot work to those cumbersome, fractional measurements in the metric system. This cumbersome fraction in another measurement would put me to an impracticable expense and into an impracticable position, and I cannot carry my work out in that way. * * * I would either go out of business or be put to the expense of some sixty odd thousand dollars in my particular case in getting out new plans, patterns, jigs and tools to make the material go evenly into that government work specified metrically. This brings me to the other horn of the dilemma. The practical result would be that the navy department either at first, or after they had tried it once, would not use the complicated measurements and odd fractions in the metric system. They would go to even expressions in the metric system, and that would force me to change my tools. The navy officers are not going to stop at the change from the English to the equivalent and awkward fractions of the metric system. They are going to insist upon the carrying out of the even metric measurements, and that is where it hits me. It also means that I have to have two systems of measures in my shop. It means that I have to order all my material in two different systems and I cannot get the metric material. * * *

"The investment in my plant is about $300,000. If I had to change my machine tools to get the metric screws, the loss to me would run up to about 25 per cent of the $300,000."

METAL TRADES GAINING.

The membership committee of the Cincinnati Metal Trades Association, of which Mr. Isador Rauh of the Cincinnati Electrical Tool Co., is chairman, held an informal meeting and dinner at the Business Men's Club on April 18. The committee invited a number of manufacturers in the city who are not members of the association to be present and explained to the guests the objects and purposes of the association and the work that was being done. Addresses were made by J. C. Hobart, of the Triumph Electrical Co., William Lodge, of the Lodge & Shipley Machine Tool Co., R. K. LeBlond, of the R. K. LeBlond Machine Tool Co., A. H. Teuchter, of the Cincinnati Machine Tool Co., J. B. Doan, of the American Tool Works Co., I. Rauh, of the Cincinnati Electrical Tool Co., and John Manley, of the Cincinnati Metal Trades Association.

Responses were made by a number of the guests and from the tenor of the remarks made it was evident that the work of the association has not been fully understood by many of those who are eligible to membership in the association. As a result of the meeting a number of new applications for membership have been received. The committee was complimented on its good work in bringing the work of the association to the attention of a number of manufacturers who are in accord with its efforts.

Union Iron & Steel Co.—Walter H. Murphy and associates have purchased from the Republic Iron & Steel Co., the Mitchell Tranter Co., Cincinnati warehouse, and the purchasers will operate the same under the name of the Union Iron & Steel Co., handling a full line of bars, plates and angles both iron and steel. Mr. Murphy has been connected with the Republic Iron & Steel Co. for several years, and has been the manager of the Mitchell Tranter warehouse for the company until he took possession of the same under this purchase.

PIG IRON FIRM.

Other Lines of the Industry Weak in Great Britain.

(Special Correspondence.)

Birmingham, Eng., April 10.—The quarterly meeting of the iron trade on Thursday last was disappointing, and in marked contrast to the January meeting. Orders were scarce, and sellers found it very difficult to maintain standards. The Strip Maker's Association found it necessary to lower prices by half a sovereign, making the standard £6 17s 6d which restores the January figure. This trade has done badly of late, partly owing to the failure of a combine in the tube trade, at which certain enthusiasts have been working for a couple of months past. The Unmarked Bar Association met under the presidency of Mr. Ebenezer Parkes, M. P., but decided not to interfere with the existing figure of £7 5s. This deceives nobody, as makers are generally quite ready to take orders at ten shillings below this standard. The galvanized sheet trade has fallen off seriously, and rumor has it that the makers who have been regulating the output and penalizing over-production are not quite a happy family. The one strong element in the market is pig iron, which seems for a time to have touched bottom, and makers are not inclined to give way. As Cleveland brands have recovered lately and inroads are now being made into stocks, there may now be an upward movement. On the whole, makers are rather more cheerful than a fortnight ago, and it is hoped that everybody, after the holidays, will be again driving ahead.

Tin Works Embarrassed.

The high price of tin is playing havoc with the Welsh tin plate trade, and a number of the works have posted notices to terminate contracts at the end of the present month, owing to the cost of production. A conference of tin plate workers has been called to consider the situation.

The fact that a meeting of the standing committee of the wages board under the presidency of Mr. Geo. Macpherson has decided to maintain wages unchanged on the basis of 8s 9d per ton for puddling, has somewhat reassured the trade, which at present cannot stand higher wages. Prices are still being ascertained with a view to the fixing of the new sliding-scale basis, and it is understood the labors of the special committee are approaching a conclusion.

One of the biggest things in the way of a cable ever manufactured in this country is now under construction by Messrs. Hingley & Son, of Netherton. Each of the 1,500 links is 3¾ inches thick and weighs 160 pounds. A sample recently tested at Netherton withstood a tensile strain of 370 tons. The cable is for the equipment of a Cunard vessel under construction at Newcastle-on-Tyne, which is to be the fastest ever built.

Ice-Breaker for Canada.

While the latest Board of Trade returns show a slight falling off in the rate of ship building there is a heavy weight on the stocks. One of the most interesting orders is one placed by the Canadian government with Messrs. Vickers, Maxim & Co., at Barrow, for an ice-breaker steamer to ply on the St. Lawrence. The object is to keep the river clear during the winter season. Similar experience in the Baltic has suggested that it might be possible to make the river navigable, and if it succeeds it is understood the new vessel will be the first of a fleet. Our great ship building houses are still having a wonderful run of prosperity. The firm just named is considering the establishment of a new branch at Manchester, for the manufacture of electrical equipments, and the development generally of an electrical engineering business. This, it is thought, would be a very useful adjunct to the armor and gun works at Sheffield, the ship building works at Barrow, and the Wolseley motor car works at Birmingham.

Abolition of Smoke.

The grand old man of the British iron trade is Alderman Richard Williams, well-known to many Americans who, though retired from the management of the Patent Shaft & Axletree Co., a position he held for many years, takes great interest in public affairs and works earnestly in connection with the Wednesbury town council, the Mond Gas Co., Tipton, the South Staffordshire Drainage Commission, Dudley and the South Staffordshire Miners' Relief Fund. The aged alderman, now well past ninety, recently induced the Dudley council to use Mond gas for various purposes. In a letter to the drainage commissioners the other day he adds he was trying to induce the local manufacturers to use gas instead of coal as he "wanted to see the abominable smoke abolished." The commissioners have introduced the gas in connection with several pumps, and are very well pleased with the result. The alderman recently expressed great satisfaction at the increase in building in Wednesbury, the birthplace of the iron trade, due to the recent marked increase in trade activity. For some years the old boro has been practically stationary in this respect, but iron trade revivals have given it a new-leased life.

Messrs. J. Shedden & Son, Dudley auctioneers, made a second ineffectual attempt on Quarter day to sell the Tibbington foundry, a very well-known old establishment at Pince's End, Tipton. It seems likely that the place will have to be broken up, a fate that has overtaken many Black Country foundries. Really there is very little hope for them unless they are quite modern and up-to-date.

The good will of the firm of Messrs. J. & S. Roberts, of the Swan & Small Heath foundries has been purchased by Mr. S. A. Roberts, of West Bromwich, a son of one of the late proprietors.

SHORTAGE OF LABOR

Hampers Operations in Crystal Mining District.

(Special Correspondence.)

Iron Mountain, Mich., April 21.—Despite considerable importations of men during the past few months, the Crystal Falls district of the Menominee range is complaining of a shortage of labor. This is especially the case at the United States Steel Corporation's Mansfield mine, seven miles east of Crystal Falls, where operations are hampered by a scarcity of miners. A fair daily output is being produced, but there is room for 150 more men and if procurable they will be added to the pay roll before the season is far advanced.

During the past winter a new level, the thirteenth, was added to the workings, and a raise to connect with the new shaft is now being cut out. The level was driven from a winze, sunk in the ore body to a depth of 150 feet. From this winze a drift was driven to a point directly beneath the shaft, and it is from this station that the miners are cutting out the raise. The plan adopted gives a back of ore 150 feet thick to work out in this part of the workings when mining operations are started.

The Mansfield is a rich property with a tragic history. When the mine was first opened, in 1889, a shaft was put down in the hanging wall because it was impossible to sink on the footwall without building a cofferdam in the middle of the Michigamme river, a considerable stream, and subject to high water in the spring. The first ore was shipped in 1890. In September, 1893, the mine openings, in following a rich vein of ore, were raised under the bed of the river so high that the river broke through, filling the entire mine in less than five minutes and drowning twenty-eight miners. This was the greatest fatality ever known in a Lake Superior iron mine and the mortality has been exceeded but once by any mine in the region, that happened just two years later, when thirty men and

boys were suffocated by gas from a fire on the twenty-seventh level of No. 3 shaft of the Osceola copper mine at Calumet.

Despite the known value of the ore deposit no attempt was made to re-open the mine until 1896, when the DeSoto Iron Co. was organized to take over the property. In the following year the Michigamme was diverted to a new channel for a distance of nearly a quarter of a mile, permitting the unwatering of the mine. The original shaft entered the footwall just above the eighth level, passing through the ore at that point, and large pillars were left to hold it firm. The second shaft was sunk about 500 feet south of the old one.

Active Mining Work.

Mining work will be actively prosecuted in the Iron River-Stambaugh district of Iron county this season, and it is estimated that half a million tons in all will be shipped from the producing properties. There is great activity in the district, also, in the way of exploratory work, with still greater activity in prospect, 30 to 40 options involving promising mineral tracts have been taken during the past month. At the present time, seven mining companies are engaged in mining or exploratory operations, and at least one other is to join in the search for ore bodies providing negotiations now in progress are satisfactorily closed. A large acreage in the field is in the hands of the Mineral Mining Co., composed of interests identified with the Pewabic company, operating at Iron Mountain, which for nearly a year has been active in picking up options to desirable tracts and at present is engaged in opening up the Beta and Hiawatha mines. The mineral Mining Co. is testing its undeveloped lands by means of the diamond drill, and recently is said to have made an important strike on a property next adjoining its James exploration, where operations are to be commenced about May 1. West of the Munro mine, in the Norway district of Dickinson county, the socalled Shields tract is being diamond drilled in the interest of Marinette (Wis.) men.

Arizona's Minerals.—Statistics compiled by the United States mint authorities show that in 1905 Arizona produced gold to the value of $3,500,000, silver $2,074,000 and copper $39,035,000. It ranked eighth among the states in gold production, sixth in silver and in copper was second only to Montana.

The government of Siam has issued specifications for extensive equipment for the Royal Siamese railway. The sealed tenders will be open in Bangkok, Sept. 4

A THERMIT REPAIR.

An interesting example of the repair of a broken piece by means of thermit was recently accomplished by L. Heynemann, consulting engineer at San Francisco, Cal. The repair was made upon a forged steel dredge bucket-arm 2 inches thick by 12½ inches wide at the break. The

FIG. 1.—BUCKET ARM, SHOWING BREAK.

fracture is shown in Fig. 1. To facilitate the flow of thermit steel through and between the broken parts, a number of holes were drilled in the crack. A sheet iron mold box was first closely fitted to the arm and carefully lined with the sand and flour core mixture and thoroughly baked. After the mold was placed in position, the parts were heated by a blow forge to expel moisture and to avoid chilling the thermit steel.

Fig. 2 is a photograph taken when the

FIG. 2.—REPAIRING BREAK IN BUCKET ARM. REACTION IN PROGRESS.

thermit reaction in the crucible was at its height. It also shows the mold in position. The thermit reaction creates a temperature of, approximately, 5,400 degrees F., so that, as in this instance, it is possible to add to the contents of the crucible a considerable percentage of steel punchings or rivets. This somewhat lowers the temperature and increases the quantity of liquid steel. Two hundred and fifty pounds of thermit were used (yielding after combustion 125 pounds of steel and 125 pounds of slag) and 40 pounds of small steel rivets.

The bucket arms assembled after the completed repair are shown in Fig. 3. This also shows the characteristic reinforcing collar of thermit steel cast around the weld for extra strength.

Appended in the following table are some results of tests of the strength and permanency of thermit welds. These were made at the works of the Fore River Ship Building Co., Quincy, Mass. Bars of rolled steel 2 x 4½ were drilled, broken and welded with thermit and standard test bars were cut from the

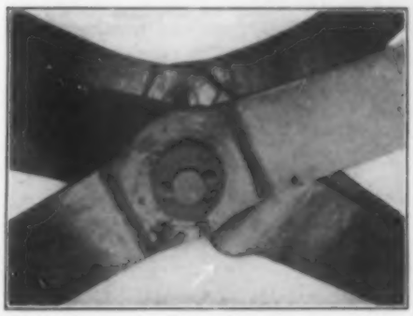


FIG. 3.—THE COMPLETED REPAIR.

center of the weld. Test bars were also cut from the unwelded parts of the stock and the results obtained were as follows:

	Elastic Limit	Tensile Strength
Weld	32,000	59,000
Stock	38,500	60,500
Weld	33,700	61,800
Stock	36,850	63,400

Detroit River Traffic.—The domestic freight traffic of the Detroit river during the navigation season of 1905 was 53,699,886 tons, of which 39,991,085 tons were southbound and 13,648,000 tons northbound. Of the southbound freight almost 33,000,000 tons were of iron ore. Coal was the principal item in the northbound freight, amounting to slightly less than 12,000,000 tons.

H. B. Underwood & Co., Philadelphia, manufacturers of portable tools are distributing to master mechanics and superintendents of motive power on railroads a booklet entitled "Link Motion," by Fred H. Colvin. This book was reviewed in the issue of THE IRON TRADE REVIEW of April 19.

The Koerting Bros. Co., Koertingsdorf, Germany, has closed contracts for 17 two-cycle gas engines ranging in size from 300 to 2,200 horsepower for installation in various parts of Europe. Several are repeated orders.

A NEW TYPE OF SLAG CAR.

The accompanying illustrations show a 10-ton slag car, fifteen of which were recently built by the Power & Mining Machinery Co., of Cudahy, Wis., for the Garfield plant of the American Smelting & Refining Co., Salt Lake City.

The car is 15 feet long over all and 6½ feet high. The weight of each car empty is 27,000 pounds.

The bowl is made in five sections, the bottom being in one piece and four quarters forming the top. This construction allows any worn or broken part to be easily replaced. The sections are bolted together and tied to a steel supporting ring by key bolts.

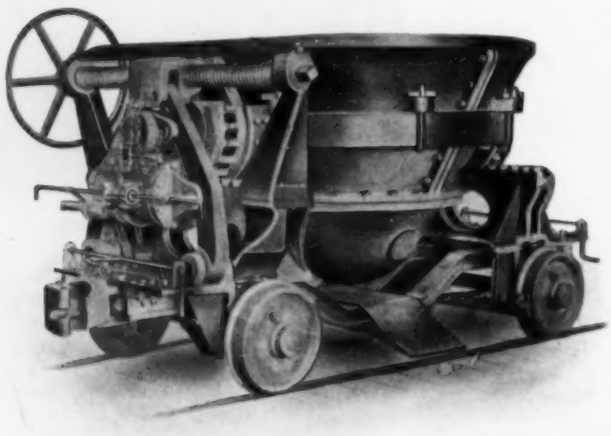
The supporting ring is riveted to pinion-toothed trunnions which roll on a racked track. The pinion and the rack are both made up between the teeth, in order to prevent clogging by any slag which might be spilled into them. The trunnions are rolled by means of a sleeve which is operated through a lever by a 12-inch compressed air cylinder.

The cylinder is designed to operate at 60 pounds air pressure and to tilt and hold the ladle in any desired position. The air valve for the cylinder is a simple four-way cock, which may be conveniently operated from the side of the car. All levers and other operating parts are made of steel, in order to reduce the weight of the machine without any sacrifice of strength.

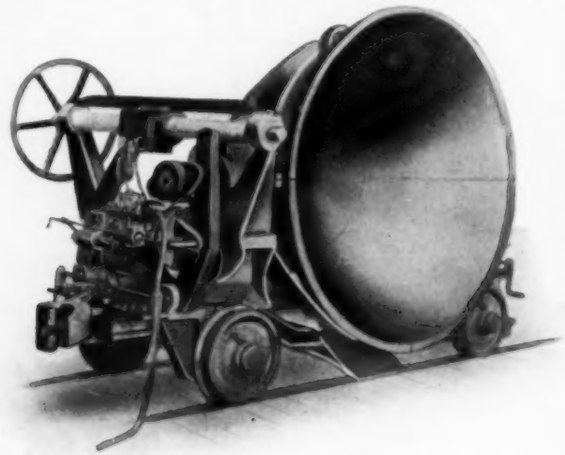
A hand wheel and screw are provided, so that the ladle can be dumped by hand, should the air supply be cut off. When tilted to the extreme position, the side of the ladle makes an angle or 50 degrees with the vertical, so that the slag skull will readily slide out. In dumping, the ladle is carried to the side of the car by the rolling of the trunnions, and so dumps outside of the rail. An apron in the middle of the truck prevents any drippings from falling on the track.

The entire body of the car is carried on eight heavy springs placed under the front and rear supporting frames and resting on the main bearing boxes. These are fitted with phosphor bronze bearings which are lubricated by removable oil waste boxes. Two 100-pound rails tie the supporting frames together, the frames being extended to carry automatic couplers. The couplers are provided with the usual side crank attachment for releasing. One of each pair of wheels is provided with a bronze bushing, so that it can revolve on the axle when going around curves.

A large factor of safety was used in the design of all parts of the car, on account of the rough usage which it necessarily will undergo in service. It was also built as simply as possible, in order to be readily operated by the men usually employed in such service. Cars of this design are made in sizes up to 15 tons' capacity, and are built with or without the air cylinder.



SLAG CAR UPRIGHT.



SLAG CAR TILTED.

The Mitchell-Diggins Iron Co., Cadillac, Michigan, announce the appointment of Pickands, Brown & Co., Chicago, as exclusive selling agents for the Cadillac brand of Superior charcoal pig iron. This company's furnace, erected during the past year, is now in active operation, under the management of the president of the company, J. C. Ford, well known in connection with the Spring Lake Iron Co. Its product will be malleable and car wheel grades.

Republic Iron & Steel earnings for the quarter ending with March were slightly in excess of $1,100,000, breaking all records of the company.

HANDLING MAIL IN A LARGE STEEL WORKS.

The internal mail system in use at the plant of the Maryland Steel Co., at Sparrows Point, Md., whose offices and works extend over a territory of more than a mile is described in *The Business Man's Magazine* of October, 1905. The mail system has for its object the frequent and regular delivery at stated points through the works of orders, letters, blue prints and all forms of communication emanating from the main office or other offices to the department superintendents and foremen.

Prior to the installation of this system, each office carried on its pay roll a messenger boy who was paid $4.00 or $5.00 a week. This boy was sent out with letters and reports to the other offices. Possibly within half an hour after he started, it would be found necessary to send out another report. A laborer being paid 12½ cents an hour would be called in and sent on the errand, requiring sometimes over one hour to make the trip. The delivery of messages, therefore, was a considerable item of expense.

To overcome all difficulties, reduce expenses and provide for a regular delivery, the offices and works at Sparrows Point have been laid out in three regular mail routes. To each route is assigned a messenger who is required to make a round trip every hour, collecting and delivering mail as he goes. The messengers carry a cylindrical tin can about four inches in diameter and 34 inches long. These cans provide for the carrying and protection, in bad weather, of blue prints. The three routes intersect at one point, and the times of starting of the messengers are so arranged that the boys meet at this point and exchange letters that are addressed to parties on routes other than their own. By this means

a letter will travel from its starting point to its destination in less than an hour.

About 500 letters are delivered each day. Formerly an ordinary manila envelope was used, addressed and sealed. These envelopes cost 65 cents per thousand, and could not be used more than once. The envelopes used at present are not gummed, and are printed with a number of spaces for addresses. The person receiving the envelope crosses out his name and address, and on sending a letter to another department writes in the second place the name and address of the person to whom he desires it sent. Thus, the same envelope may be used seven times. These envelopes cost but 15 cents per thousand for printing, and the saving on envelopes amounts to $3.80 per thousand.

Each mail carrier is provided with a small form, on which is kept a careful account of the deliveries made on each trip. At the end of the day, this is handed to the person in charge of the system who makes a detailed monthly report to the general agent, showing the total number of deliveries per week, as well as the number of miles walked by the boys and the number of stations served.

Money is transmitted by the boys by a careful system of registering, whereby every carrier who handles an envelope containing money receipts for it and finaly receives a receipt from the person to whom it is addressed, the receipt bearing the signature of everyone who has handled the money being turned over to the cashier who files it.

There is a total of 41 stations on all routes which are served 10 times a day. At each station is a box 10 inches wide, 12 inches long and 5 inches deep, divided into two compartments. One compartment is marked "In" and the other "Out," and the letters delivered are placed in the compartment marked "In," while any person desiring to send mail places it in the compartment marked "Out."

The boys begin work at seven in the morning and stop at six, taking an hour for lunch. On Saturday afternoon, one boy makes one trip over all three routes, alternating with the others. Thus each boy receives one Saturday afternoon out of every three. They are paid $1.00 per day. The service fills a long felt want at the Sparrows Point plant, and it is generally agreed that it is a great saving over the old methods.

Canada is now producing more nickel than all the rest of the world, according to Consul Harvey, at Fort Erie, Can.

THE AMERICAN IRON TRADE IN 1905.[1]

The year 1905 was not only the most productive and the most prosperous year in the history of the American iron trade but it was the most uniformly prosperous year. From January to December the demand for all leading forms of iron and steel and for the raw materials of their manufacture was continuous and persistent. There was no "dull season," no overloading of the markets, no slump in prices. Upon the other hand there was no great scarcity of iron and steel at any time, the markets in the main were well supplied, and consequently there were no "famine" prices. The orders that were sent abroad entirely lacked sensational features, because we had the capacity to meet our own wants for pig iron and finished iron and steel. Nor was our export trade neglected, as will presently be seen. Production was abnormally and phenomenally great, but best of all prices were wisely kept within reasonable bounds. We have heard of no complaints that prices were too high.

The increase in the production of iron and steel in 1905 as compared with 1904 was simply marvelous. Pig iron jumped from 16,497,033 tons in 1904 to 22,992,380 tons in 1905; Bessemer steel from 7,859,140 tons in 1904 to 10,941,375 tons in 1905; open-hearth steel from 5,908,166 tons in 1904 to 8,971,376 tons in 1905; and all kinds of rails from 2,284,711 tons in 1904 to 3,373,929 tons in 1905. The total production of steel in 1904 was 13,859,887 tons, but in 1905 it exceeded 20,000,000 tons. The total shipments of iron ore from the Lake Superior region increased from 21,822,839 tons in 1904 to 34,353,456 tons in 1905. It is freely predicted that even the above extraodinary figures of production in 1905 may be exceeded in 1906.

The prices of iron and steel which prevailed in 1905 were not only kept within reasonable bounds, as above stated, but the advances that occurred over the exceedingly low prices of 1904 were really smaller than the extraordinary demand would have justified, while the forbearance of the steel rail manufacturers in keeping the price of rails all through 1905 at the same figure that prevailed all through 1904 is worthy of special mention. The railroads were helped greatly by this low price, $28, but if the critics of the so-called trusts in the iron trade could have had their way and suppressed all of them the price would have probably soared fifty per cent higher, at least for a short time.

The extraordinary demand for iron and steel in 1905 was primarily due to the continued prosperity of the country, notwithstanding the reaction of the stock market in 1903 and 1904, which unfavorably affected all business. The reaction having spent its force in the summer of 1904 the pendulum swung in the opposite direction in the last quarter of that year and in 1905. With re-established confidence in the business world, good crops, an abundance of good money, continued tariff protection against foreign competition, a large increase in our population, and the steadily increasing use of iron and steel for engineering purposes and in the construction of buildings and railway cars, the great demand for iron and steel in 1905 was naturally to be expected, and it was encouraged and promoted by the good sense of the manufacturers in keeping down prices.

As in other years the railroads were the best customers of our iron and steel manufacturers in 1905. Their increased prosperity in that year, in harmony with that of the country generally, called for larger expeditures for rails, cars, locomotives, bridges, etc., than in 1904. There was in 1905 an increase in the mileage of new railroad track and the betterment of track already built, and in the same year more cars and locomotives were built in this country than in any former year. The Baldwin Locomotive Works built 2,250 locomotives in 1905, but in 1904 they built only 1,453. Thus far in 1906 there has been no abatement of the demand for railway equipment.

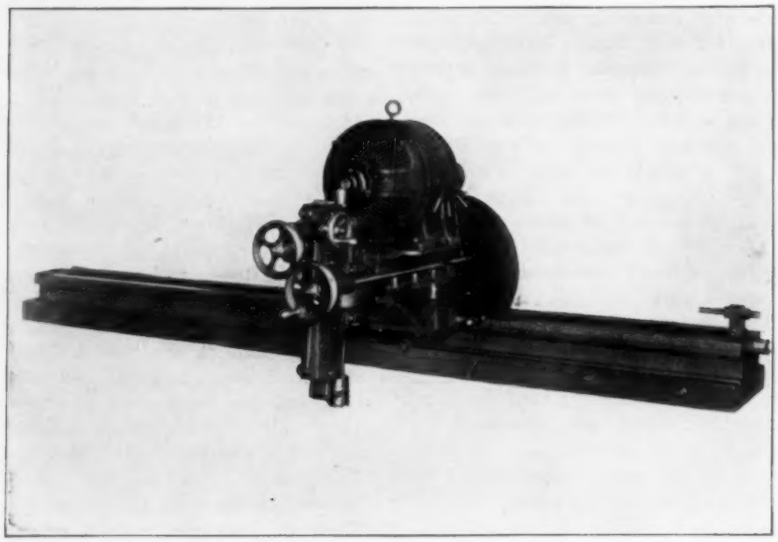
One of the interesting features of the iron trade of this country in 1905 was the great increase that took place in that year in our exports of iron and steel, notwithstanding the active home demand for these products. In 1904, when this demand was far from being satisfactory to our manufacturers, when prices were low, and customers, whether at home or abroad, were badly wanted and diligently sought for, we exported iron and steel products of the valve of $128,455,613, greatly exceeding the exports of any previous year, but in 1905 we exported iron and steel products valued at $142,928,513, an increase over 1904 of $14,472,900. Much of this increase was due to the systematic activity of the United States Steel Corporation in pushing its wares into foreign markets. Our imports of iron and steel in 1905 also showed an increase over 1904, amounting in 1905 to $26,392,728, against $21,621,970 in 1904.

[1] From the Annual Report of The American Iron and Steel Association, now in course of preparation.

A PORTABLE MILLING MACHINE.

H. B. Underwood & Co., 1025 Hamilton street, Philadelphia, have developed and recently placed on the market a portable milling machine which is shown in the accompanying illustration. This machine is the outgrowth of a temporary rig that the company was required to make, in order to do work on a large machine in a stated time and in place. The idea conceived at that time has been elaborated from time to time until the machine, as shown in the illustration, has become one of H. B. Underwood & Co.'s special tools.

The milling machine is designed for straight line work up to a length of 8 feet, with a number of surfaces in line but on different planes. The tool is motor driven, the motor being placed on top of the carriage, as shown. This enables it to be taken to the work, and to do work of such a character that no other machine tool could do as required, as it is able to operate on a given job after all parts are assembled.



UNDERWOOD PORTABLE MILLING MACHINE.

The carriage has a travel of eight feet, and is provided with automatic feed; the cross slide has a travel of 12 inches, and the vertical spindle an up and down motion of 10 inches. The cross slide of the machine is provided with hand feed. The spindle has a taper hole to receive taper shank mills. The bed is mounted on a sub-base, thus allowing accurate adjustment by set screws setting up against taper space pieces, and thus securely holding the two beds as solid as if built in one piece. This sub base is provided with long slots and projections for securing the tool to the work, by means of clamps or bolts.

BOOK REVIEW.

Steel Mill Buildings, by Milo S. Ketchum, dean of the School of Applied Science, University of Colorado. New York. The Engineering News Publishing Co. Cloth. 6½ x 9 inches; 367+xiii pages; 29 tables and 185 illustrations in the text. Supplied by THE IRON TRADE REVIEW for $4.

Every book has its limitations, and usually only a part of a subject can be treated The present edition of "Steel Mill Buildings" neither starts with the fundamentals or carries one to the end of the matter in hand. A knowledge of the elementary principles of stresses is presumed on one hand and on the other no attempt is made to go in to the details of bridge design. For the student it is not altogether satisfactory, as a rather too brief treatment in which a too conversant knowledge of the subject is assumed, makes the text less clear in its sequence than it might otherwise be. For the engineer who wishes a reference or desires to brighten his memory on methods, this book should be eminently satisfactory. No attempt is made to include in the text such information and tables as one may find in the ordinary handbook.

The first 20 pages are devoted to a discussion of the various kinds of loads, dead, snow, wind and miscellaneous with explanatory tables and diagrams. Part II is devoted to a consideration of the stresses in various shapes and structures. Eleven chapters, embracing 120 pages begin with a treatment of graphical statics in which the numerous conditions under which forces act are individually considered, although too briefly to permit of more than an outline of methods. Stresses in framed structures, simple roof trusses, beams, bridge trusses and bents are determined by both graphical and algebraic methods. The matter on portals, two-hinged and three-hinged arches and stresses in bars in this section is new in part and should be of value in many forms of design.

Part III is devoted to the design of mill buildings considering such a structure as a unit in which are embraced the various members and conditions of stress treated separately in the preceding part. The general principles involved in construction, the considerations of spacing, pitch, selection and other details in the arrangement of the trusses, columns and remaining parts of the building are taken up in the 46 pages of the first two chapters of this section. Following, the roof, walls, foundations, floors and windows are considered in separate chapters, some 80 pages being devoted to this phase of the subject. This seems to be perhaps the most valuable part of the book, for the qualifications and descriptions of a large variety of materials in use are here described and discussed from a practical standpoint. Considerations which experience has shown the author to be essential are brought out in regard to choice and suitability of material, design and cost.

Part IV concludes the book with a chapter on various types of buildings illustrating in a practical way many features pointed out in the theoretical discussion of the principles involved in mill building construction. An appendix of 14 pages outlines in a valuable manner the necessary specifications for steel frame mill buildings.

A BISHOP ON LABOR UNIONS.

Bishop C. C. McCabe of the Methodist church, has come out squarely against labor unions as they now exist. Bishop McCabe takes the position that the church should stand for all the laboring men and not for the small proportion that belongs to a labor union. Here is what he has to say on the subject:

"We are opposed to having a small percentage of labor run the entire laboring class. We are the friends of labor, but we are as much the friends of 90 per cent of the laborers who resent being bossed by the other 10 per cent. Unions cannot long stand as they are. I want this to be acepted as part of the creed of every Protestant church."

The billet production of the Republic Iron & Steel Co. for March was announced as 40,000 tons, or at the rate of about 550,000 tons a year, the largest in the company's history.

Market Depressed by Western Disaster.

The San Francisco disaster was naturally the overshadowing influence on the stock exchanges during the past week with the result of small declines in practically the entire range of securities dealt in. Though the week opened with nominal interest rates and the action of Secretary Shaw worked a practical relief from money market pressure by bringing upwards of $20,000,000 in gold from abroad, the market was not particularly strong when the first news of the disaster came. Transactions in the opening days were on a moderate scale and for the remainder of the week they were so small as to make the total dealings among the lightest of the year. Total sales were 6,055,800 shares. Despite its apparent weakness, however, the market showed a singular basis of strength in caring for the enormous losses incurred at San Francisco and the Pacific Coast, and speedily placed itself in position to stand the heavy drain of funds which immediately followed. Few securities declined to any marked extent and the depressing influence of the fire was remarkably well distributed. Certain railroads whose terminal facilities were destroyed declined sharply, but otherwise the level of prices was fairly well maintained. The week developed a number of other features which in less excited times would have claimed careful consideration and exerted strong influence. Among these were the employment of special counsel for the vigorous prosecution of the Interstate Commerce Commission's inquiry concerning the so-called coal trust, the president's pronounced position on the income tax and his special message to congress recommending legislation to facilitate the prosecution of corporations for violation of the anti-trust laws. These influences were, however, entirely overshadowed. The steel securities sold slightly in excess of 600,000 shares, Union Pacific 826,700, Reading 631,900 shares, Pennsylvania 421,200 shares, Amalgamated Copper 939,700 shares, and American Locomotive, Colorado Fuel & Iron and American Car & Foundry Co. were fairly active.

THE LEADING INDUSTRIAL SECURITIES.

	Closing Quo. April 14	Closing Quotation April 21	Changes	Date of 1906 Ann. Meet.	Par Value	Capital Outstanding	Dividend Basis	Dividend Being Paid	Dividend Date Last Div. Dec.
Allis-Chalmers Co	22	22	.....	Sept.	100	19,820,000	.....	.....	.....
Allis-Chalmers preferred	57½	56½	−1		100	16,150,000	7 cum	.....	Feb., 1904
American Can	8⅞	8⅛	− ⅜	Apr. 24	100	41,233,300	.....	.....	.....
American Can preferred	64½	61¼	−3¼		100	41,233,300	7 cum	5 Q.	Apr., 1906
American Car and Foundry	44¾	42⅞	−1⅞	June 28	100	30,000,000	.....	.....	May, 1905
AmericanCar and Foundry preferred	102	102¼	+ ¼		100	30,000,000	7 n. c.	7 Q.	Jan., 1906
American Locomotive	68⅜	68½	+ ⅛	Oct. 16	100	25,000,000	.....	.....	.....
American Locomotive preferred	115	114½	− ½		100	24,100,000	7 cum	7 Q.	Apr. 1906
American Shipbuilding	56½	56	− ½	Oct. 2	100	7,600,000	4	4 Q.	Apr., 1906
American Shipbuilding preferred	105	107½	+2½		100	7,900,000	7 n. c.	7 Q.	Jan., 1906
American Steel Foundries	12⅜	11⅛	− ⅞	Oct. 3	100	17,700,000	.....	.....	.....
American Steel Foundries preferred	46½	45	−1½		100	17,700,000	6 cum	.....	Aug., 1905
Barney & Smith	65	65	.....	June 5	100	1,000,000	.....	.....	June, 1894
Barney & Smith preferred	140	140	.....		100	2,500,000	8 cum	8 Q.	Mch., 1906
Bethlehem Steel	29½	27½	−2	April 3	100	15,000,000	.....	.....	.....
Bethlehem Steel preferred	90	87⅞	−2⅛		100	15,000,000	7 n. c.	7 Q.	May, 1906
Bullock Electric preferred	111	111	.....	Oct. 2	100	1,000,000	6	6 Q.	Jan., 1906
Cambria Steel	36¼	35¾	− ½	March 20	50	45,000,000	6	7 Q.	Mar., 1906
Cambria Iron	49⅞	49⅞	.....		50	8,468,000	4	4 S. A.	Apr., 1906
Colorado Fuel & Iron	62⅞	61⅛	−1¾	Oct. 15	100	30,132,000	7	.....	Apr., 1902
Wm. Cramp & Sons Ship & Eng. Bldg. Co.	25	20	−5	May 31	100	6,098,000	5	.....	Nov., 1902
Crucible Steel	15	14½	− ½	Oct. 17	100	25,000,000	.....	.....	.....
Crucible Steel preferred	80⅛	80¾	+ ¾		100	25,000,000	7 cum	.....	Sept. 1903
Empire Steel	8	7	−1	Feb. 28	100	2,281,400	.....	.....	.....
Empire Steel preferred	38	40	−2		100	2,500,000	6 cum	3 S. A.	Jan., 1905
Fay & Egan	93½	93½	.....	Feb. 20	100	1,000,000	5	5 Q.	Nov., 1905
Fay & Egan preferred	128½	128½	.....		100	1,000,000	7 cum	7 Q.	Nov., 1905
General Electric	172	169⅛	−2⅞	May 8	100	48,256,050	8	8 Q.	Jan., 1906
International Pump	47	48½	+1½	June 5	100	12,282,500		2	July, 1905
International Pump preferred	85	83¼	−1¾		100	8,850,000	6 cum	6 Q.	May, 1906
Lackawanna Steel	72	71	−1	March 14	100	34,971,400	.....	.....	.....
Lake Superior Corporation	20	19½	− ½	Oct. 3	100	40,000,000	.....	.....	.....
Niles-Bement-Pond	130	130	.....	Feb. 7	100	5,000,000	6	6 Q.	Feb., 1906
Niles-Bement-Pond preferred	105	105	.....		100	2,000,000	6 cum	6 Q.	Mch., 1906
Otis Elevator Co	54	54	.....	March 19	100	6,350,300		2 A.	Apr., 1905
Otis Elevator Co. preferred	100	100	.....		100	5,589,500	6 n. c.	6 Q.	Apr., 1906
Pittsburg Coal Co	17¼	17¼	.....	Feb. 12	100	30,135,000	.....	.....	.....
Pittsburg Coal preferred	59	57¼	−1¾		100	30,716,200	7	.....	Apr., 1905
Pressed Steel Car	55½	54⅜	− ⅞	Feb. 21	100	12,500,000		3	Apr., 1905
Pressed Steel Car preferred	99½	98½	.....		100	12,500,000	7 n. c.	7 Q.	Aug., 1904
Pullman Palace Car	237¼	236¼	−1	Oct. 18	100	74,000,000		8 Q.	May, 1906
Railway Steel Spring	55⅜	55	− ⅜	March 1	100	13,500,000		4 S. A.	Feb., 1906
Railway Steel Spring preferred	103	103	.....		100	13,500,000	7 cum	7 Q.	Oct., 1905
Republic Iron & Steel	32	30¼	−1¾	Oct. 17	100	27,352,000	.....	.....	Apr., 1905
Republic Iron & Steel preferred	103¼	102¼	− ¾		100	20,852,000	7 cum	7 Q.	.....
Sloss-Sheffield	83	80⅜	−2⅝	March 14	100	7,500,000	5	5	Apr., 1906
Sloss-Sheffield preferred	112¾	112¾	.....		100	6,700,000	7 n. c.	7 Q.	Jan., 1906
Tennessee Coal & Iron	149	145	−4	May 15	100	22,552,800		4 Q.	Jan., 1906
U. S. Cast Iron Pipe & Foundry	51⅞	49⅞	−2	June 27	100	12,500,000		2	Apr., 1906
U. S. Cast Iron Pipe & Foundry preferred	94⅞	94⅜	− ⅝		100	12,500,000	7 n. c.	7	June, 1906
U. S. Steel	43½	43½	.....	April 16	100	508,302,500	.....	.....	June, 1906
U. S. Steel preferred	109	108¼	− ¾		100	360,281,100	7 cum	7 Q.	Dec., 1903
U. S. Steel 5's	99¾	99⅞	+ ⅛		100	463,798,000	5	5 A.	Feb., 1905
Virginia Iron, Coal & Coke	47⅜	46½	− ⅞	Sept. 18	100	8,641,600	.....	.....	.....
Westinghouse Electric	156	156	.....	June 27	50	20,996,350	10	10 Q.	Apr., 1906
Westinghouse Air Brake	153	150	−3	Oct. 2	50	10,980,450	20	20 Q.	Apr., 1906

FINANCIAL NOTES.

Recent dividend declarations include the following: Pullman, regular quarterly, 2 per cent, payable May 15; Bethlehem Steel, regular quarterly on preferred, 1¾ per cent, payable May 1.

The Westinghouse Electric & Mfg. Co. has notified the New York Stock Exchange of an increase in capital from $25,000,000 to $50,000,000.

The annual meeting of the Pennsylvania Steel Co. will be held on May 14 in Camden, N. J. Net earnings are estimated at between $3,250,000 and $3,500,000, which will leave a surplus over the preferred dividend of considerably over $1,000,000.

Stockholders of the Buckeye Steel Castings Co., Columbus, O., have approved an increase in capitalization from $1,000,000 to $2,500,000. This will consist of $1,000,000 of 6 per cent preferred and $1,500,000 of common on a 1 per cent basis. Of the latter $500,000 will remain in the treasury.

NEWS FROM MANY INDUSTRIES.

New Buyers:—

The Superior Ore & By-Product Co. has been incorporated under New Jersey laws by George L. Folger, Henry H. Freeman and Edward P. Russell, of Pittsburg, Pa. The capitalization is $200,000 and the objects named are mining and milling of ores, metals, etc.

The Central Foundry Co., Webb City, Mo., has been incorporated with $35,000 capitalization by J. H. Wathmey, Adolph Steel and H. W. Currey.

The Catasauqua Castings Co., Catasauqua, Pa., has been incorporated with a capital stock of $50,000, by Leonard Peckitt, Richard W. Kohler, both of Catasauqua, and A. W. Findlay of Wayne. The new company will operate the plant of the Union Fdy. & Machine Co., purchased by Mr. Peckitt some time ago.

E. R. Bertelli & Co. has been incorporated with a capital stock of $75,000 to manufacture engines, machinery, etc. The incorporators are: E. R. Bertelli and Celestino Piva, No. 20 West 16th street, and E. Palandina, No. 29 Greene street, all of New York.

The Buffalo Radiator Co. will manufacture radiators, boilers, furnaces, etc. The capital stock is $150,000, and the incorporators are: Whitney G. Case, Joseph P. Fell, Henry M. Poole and Fred A. Mason.

The Ross Engineering Co. has been incorporated to manufacture mechanical stokers, etc. The capital stock is $100,000, and the incorporators are: William J. Bagewell, James A. Byrne and Rudolph W. Yates, all of No. 32 Liberty street, New York.

The Allis-Watson Co., electrician, mechanical engineer, etc., has been chartered with a capital stock of $15,000. The incorporators are: Louis Allis and T. S. Watson, Milwaukee, Wisconsin; Eustace Conway, No. 15 William street; John Richmond, No. 39 Cortland street, both of New York; and F. H. Petrie, Milwaukee, Wisconsin.

The New York & Ontario Power Co., electric light, heat and power, has been incorporated with a capital stock of $2,000,000. The incorporators are: David J. Crichton, John W. Liston and William F. Burt, all of Ogdensburg, N. Y.

The New York Engineering Co., No. 83 Montgomery street, Jersey City, N. J., has been incorporated with a capital stock of $100,000 to manufacture machinery and to carry on engineering, contracting and construction. The incorporators are: A. C. Ludlum, No. 21 State street, New York; James C. Erving, No. 1009 Empire building, Pittsburg; and Charles Schlegel, No. 63 Tomele avenue, Jersey City, N. J.

The Shenandoah Ore & Iron Co., Baltimore, Md., has filed articles of incorporation to purchase, lease and acquire mines and metaliferous lands in the state of Virginia for development. The capital stock is $250,000 and the incorporators are: George D. Everson Jr., George M. Armstrong and I. Bayard Williams, all of Baltimore.

The Seaboard Bridge Structural Steel Works, No. 83 Montgomery street, Jersey City, New Jersey, has filed articles of incorporation to manufacture and construct bridges, trestles, viaducts, aqueducts and structural steel for these purposes. The capital stock is $300,000 and the incorporators are: Elliott C. Smith, Englewood, N. J.; John J. Ginnane, Freeport, L. I.; and Leonard N. Burns, Palisades Park, N. J.

The American Heating Battery, contractor and engineer, Devon street and Erie Railroad, Arlington, N. J., has been incorporated with a capital stock of $500,000. The incorporators are: Gustave K. Harting, No. 138 Alexander avenue, The Bronx, New York; George H. Fagan, No. 46 New Lawn avenue, Arlington, N. J.; and A. M. Lynch, No. 818 Grand street, Jersey City, N. J.

The Safety Electric Elevator Co. has been incorporated with a capital stock of $20,000 to manufacture elevators, hoists, lifts, etc. The incorporators are: Edward Schrenkeisen, No. 17 East Seventy-fifth street, New York; Ernest H. Vogel, No. 1222 Decatur street, Brooklyn; and Martin N. Kaney, No. 137 West 128th street, New York.

The Hicks Locomotive & Car Works, Chicago, has been incorporated for $1,200,000 by Frank P. Holran, formerly with the Rogers Locomotive Works; Samuel H. Lever, Stanley L. Smith, Robert Giles and George B. Sadler.

The Earhart Steel & Iron Works, Sacramento, Cal., has been incorporated with $500,000 capitalization to manufacture the Earhart nut lock. Thomas B. Earhart is president of the company, and M. S. Wahrhaftig, secretary.

The Railway Tie, Rod & Spike Co., Minneapolis, Minn., has been incorporated with a capitalization of $500,000 for the manufacture of a new angle spike and tie rod. Among the incorporators are E. J. Bricker, DeWitt Nelson, Archer Allen, D. H. Robinson and Frank Tidball, of Minneapolis, and W. V. Kasper, of Owatonna.

The Safety Railway Switch Co., Kenosha, Wis., has been incorporated with a capitalization of $38,000 by Harry Raymond, Edward S. Frendson and J. T. Pabst. It will erect a factory for the manufacture of railroad switches.

The Minerva Manufacturing Co., chartered with a capital stock of $200,000, will manufacture machines, tools, etc. The incorporators are: Harold Binny, No. 141 Broadway, and Ernest F. Ayrault, No. 25 Pine street, both of New York, and Horatio E. Osgood, No. 12 Mygott street, Binghamton, N. Y.

The J. Wood Iron Works Co., Portland, Ore., has been incorporated with a capitalization of $10,000 by John and May C. Wood and C. F. Schmeer.

The Seattle Foundry Co., Seattle, Wash., has been organized with a capital of $10,000 by Robert Niedergesaess, A. H. Garrison and William Dougall.

The Conley Frog & Mfg. Co., Arcola, Ill., has been organized with a capital of $200,000 to manufacture railroad switch frogs, after the pattern of one invented by Mr. Conley. The incorporators are: John E. Conley, Harry O. Flickinger and Michael McCafferty, all of Arcola.

The Racine Iron & Wire Works, Racine, Wis., has been incorporated with a capitalization of $10,000 to buy, sell and manufacture any article made in part or in whole of wood, iron, steel, brass, copper, zinc, etc. The incorporators are: George L. Buck, John P. Hochguertel and Charles W. Peck.

The George Haiss Manufacturing Co. has filed articles of incorporation to manufacture coal handling and other machines. The capital stock is $75,000 and the incorporators are: George Haiss, No. 205 Alexander avenue; James F. Swinnerton, No. 347 St. Anns avenue; and Otis W. Birnie, No. 291 Alexander avenue, all of The Bronx, New York.

New Construction:—

The Kelley Nail & Iron Co., Ironton, O., is soon to erect a building 50 x 100 feet, two stories in height, to be used for stock and storage purposes. It will be located adjacent to the company's mill building.

The United States Cast Iron Pipe & Foundry Co. expects to have the additions now under way at its Chattanooga works in operation by August. The buildings are of brick and steel construction and will add about two-thirds to the present output of the works, with a specialty of large size pipe. Equipment has been purchased.

The Casey-Hedges Co., Chattanooga, has awarded the contract for the foundation for additions to the boiler department which will be 365 feet long, with two wings 85 x 100 feet. Contracts have also been let for the power plant machinery, but the company will be in the market later on for modern machinery for the manufacture of boilers and other work in this line. Some additions are also to be made to the foundry depart-

ment for which provision has been made. The Casey-Hedges Co., which is an Ohio corporation, is a consolidation of the Casey & Hedges Mfg. Co. and the Chattanooga Pipe & Foundry Co., which hitherto have been operated separately, although owned by the same interests.

The Western Drop Forge Co., Marion, Ind., is making such rapid progress on improvements at its plant that it expects to begin the manufacture of drop forgings within 30 days.

The Safety Emery Wheel Co., Springfield, O., has work well advanced on a large addition to its plant which will increase its present capacity about one-third. It is hoped to have the equipment in place and the enlarged plant in operation by June 1.

The Owen Machine Tool Co., Springfield, O., manufacturing milling machines, has been making some rapid strides in the past few months, having recently installed sufficient equipment to double the output of its works. However, it is finding the demand for its product so extensive that additional equipment is to be purchased which will about triple its former capacity.

The Charlotte Pipe & Fdy. Co., Charlotte, N. C., is erecting a building 100 x 150 feet to replace that recently destroyed by fire.

The plant of the United States Foundry & Sales Co., South Norwalk, Conn., which will be taken over by the South Norwalk Flanged Fittings Corporation, is to be extended at a considerable cost, and some additional equipment will be required. J. A. Richardson, of South Norwalk, is president and general manager of the new company which is a $600,000 corporation.

The National Metallurgical Co., with offices at 43 Exchange place, New York, has awarded to the Riter-Conley Mfg. Co., Pittsburg, the contracts for an extensive plant at Aspinwall, Pa., for the desulphurizing and nodulizing of iron ore. For the present the plant will have two rotary kilns treating 250 tons of ore daily, and large cupola buildings will be erected ultimately. The company already has a plant in successful operation at Hackensack Meadows, N. J.

The Lukenheimer Co., Cincinnati, is preparing plans for an extensive foundry for the manufacture of steel, semi-steel, malleable and gray iron castings. It will be some little time, however, before construction work will begin.

The new plant of the Utica Pipe Foundry Co., Utica, N. Y., will probably be ready for operation by September, with a capacity of 200 tons of pipe per day. All the contracts have been let and the foundation work is completed. The buildings will be of iron and steel throughout. The main foundry building is 115 x 240 feet, with two cleaning and testing houses each 40 x 220 feet, a boiler house 40 x 75 feet and an engine and generator house 40 x 75 feet. The main foundry building will be equipped with traveling bridge and jib cranes and electric power will be used throughout.

The Pittsburg Valve & Fittings Co. is preparing to erect a large malleable iron foundry at its works at Barberton, O. The new building will measure about 125 x 450 feet.

Frazer & Jones Co., Syracuse, N. Y., announces that plans will be ready for contractors about May 1. Bids will be entertained on any form of steel construction which will produce the desired results and conform with the building regulations. Bids on reinforced concrete construction will also be received.

The Electric Cable Co., formally opened its new plant at Bridgeport, Conn., April 16, when the board of trade of that city and other guests were entertained. The new structure is 62 x 230 feet in size, of brick construction, and is equipped with steel traveling cranes which provide adequate facilities for loading the product on a private siding. Space is provided for 30 machines and 300 employes and further buildings are planned on the large plot west of the plant. The capital of the company is shortly to be increased from $500,000 to $1,000,000. Large orders are reported for its products, among which are Voltax, a new insulating compound, magnet wire, field and armature coils and soldered mesh rail bonds.

Contracts have been let and the work of construction has already begun on extensive improvements at the works of the Union Malleable Iron Co., East Moline, Ill. These include an addition to the foundry 152 x 234 feet, an addition to the annealing house 102 x 133 feet and a new core building 57 x 220. Three 15-ton furnaces and eight 25-ton annealing ovens will be installed. The company expects to increase its power plant by adding two 150-horsepower water tube boilers and a 300 K. W. direct connected alternating generator. These improvements, it is expected, will increase the capacity of the works about 60 per cent.

The Western Steel Car & Foundry Co., Chicago, has taken out a permit for a steel shop building, to cost about $60,000. It will be located at 136th street and the C. & W. I. tracks.

The Colorado Gray Iron Foundry Co., Denver, of which J. M. Herbert is president, has purchased a tract of several acres of ground near Burnham, of that city, adjacent to the plant of the Western Iron Works, and will erect an iron foundry to cost about $100,000. It is expected that the work will be completed by August.

The Duluth, Missabe & Northern railroad has awarded to L. D. Campbell & Co., Duluth, the contract for a machine shop 60 x 260 feet, to be erected at Mitchell, Minn., two miles east of Hibbing. The structure will cost $60,000.

The Pittsburg Gas & Supply Co. is to erect a six-story structure of steel and concrete on a site recently purchased at Liberty avenue and Thirtieth street, Pittsburg. The company's offices and warehouse will be installed in the new building.

The Asheville Supply & Fdy. Co., Asheville, N. C., which recently increased its capitalization to $22,500, is to improve and enlarge its foundry facilities.

The Otto Gas Engine Works, Philadelphia, is to erect a shop building of steel construction 140 x 600 feet at Wilmington, Del., on a tract of more than 50 acres acquired several months ago. Considerable equipment will be required.

The Atlanta Steel Hoop Co., Atlanta, Ga., has completed the installation of two new Morgan continuous merchant mills, and has its two 35-ton basic open-hearth furnaces almost finished.

The Minor Construction Co., Big Stone Gap, Va., has secured the contract for erecting 300 coke ovens near Crab Orchard, Va., where a coal and coking plant is to be installed by C. P. Perin, J. P. Pierpont and others.

F. P. Pfleghar & Sons, New Haven, Conn., manufacturing general hardware and sheet metal goods, is to erect a large three-story factory building on a site recently purchased on Winchester avenue, in that city.

The Vulcan Iron Works, Wilkesbarre, Pa., has begun work on a structure 93 x 103 feet which will be devoted to locomotive construction. The blacksmith department is also being extended, and considerable machinery has already been purchased.

Rodyhouse, Arey & Co., of Philadelphia, have been given the contract for erecting a large machine shop and other extensive work in connection with the east side terminal improvements of the Baltimore & Ohio in that city. The railroad's plans contemplate an expenditure of more than $500,000.

Fires:—

The Virginia Bridge & Iron Co., Roanoke, Va., sustained a loss of about $10,000 by fire in its structural department April 11. Full insurance was carried.

The Berres-Gehl Mfg. Co., West Bend, Wis., lost its machine shops and foundry by fire April 11, saving the store room, pattern and storage yards. The loss is about $25,000. The company manufactures farm machinery.

The iron foundry of Enz & Orr was damaged to the extent of $4,000 by fire April 13.

General Industrial Notes:—

The Devolute Machine Co., 346 Broadway, New York, will continue the manufacture and sale of the Everett-McAdam continuous electric blue print machine. A factory has been secured at 517 W. Forty-fifth street, and equipment is being installed. After May 1 the officers of the company will be at this address.

The Benthall Machine Co., Suffolk, Va., has secured all needed machinery and will manufacture a peanut picking machine. The company is in the market for suitable grades of pig iron.

The Lynchburg Foundry Co., Lynchburg, Va., states that the improvements now under way at its works will not require additional equipment, as they include merely the enlarging of two pipe pits.

The Atlas Wire Fence & Post Co., Toledo, O., recently incorporated for $50,000, has secured temporary quarters and at an early date will begin the manufacture of wire fencing.

The furnace of the Virginia Iron, Coal & Coke Co., Max Meadows, Va., has been closed down for repairs which will require about one month for completion.

The board of general appraisers has ruled that long steel cylinders, used for holding gas under pressure, are subject to duty at the rate of 45 per cent as "manufactures of metal." Shorter tubes are dutiable as "tubes" at the rate of 35 per cent.

The Columbus & Hocking Coal & Iron Co. was victorious in the decision recently handed down by the common pleas court at Columbus, O., in litigation with S. A. McManigal, former vice president and manager, and the Maple Hill Coal Co., in which about $500,000 is involved. This decision, however, does not terminate the litigation.

The Birmingham Engineering & Construction Co., of Birmingham, Ala., has been adjudged a bankrupt. Assets and liabilities of the company are about $60,000.

The Milwaukee Artistic Metal Ceiling Co., Milwaukee, Wis., which was recently incorporated, will operate six ceiling presses and will make a specialty of the product with invisible joints. Its product is already on the market.

Trade Notes:—

The Reliable Foundry Co., Quincy, Ill., is in the market for a second hand boring mill for machining structural bases up to 48 inches or more in diameter and fitted for drilling holes in same. It will also require a second hand lathe capable of swinging 36 inches and having at least 16 feet between centers, a second hand boiler either 30 or 50 horsepower of horizontal type and a 25 or 30-horsepower engine of horizontal type. These will be installed at the Ft. Madison, Ia., plant.

The Vulcan Foundry & Machine Co., New Castle, Pa., reports the recent receipt of several large orders, and finds business in rolling mill, special machinery and iron and steel castings fairly heavy.

The Allis-Chalmers Co. recently supplied the Illinois Steel Co. with an 84-inch type "B" Tomlinson barometric tube condenser, together with an eight-inch 20 x 24-inch horizontal dry air pump, a 6,500-gallon Connersville cycloidal pump and a 14 x 16-inch vertical engine, direct connected to the pump. It has also sold to the Bellefontaine Bridge & Iron Co., Bellefontaine, O., an installation of electric machinery.

T. S. McRath & Co., Portland, Ore., announce the removal of their offices to the Lumber Exchange building, Second and Stark streets.

The Buffalo Forge Co., Buffalo, N. Y., has closed contracts with the Delaware & Hudson Co. for what is said to be the largest single forced draft equipment ever installed. The apparatus, which will go to the Olyphant colliery, near Scranton, will eventually supply 14 boilers and consists of a ¾ housing steel plate fan with 15-foot blast wheel direct connected to a plain slide valve heavy duty engine. This is the third unusually large forced draft outfit furnished this company by the Buffalo Forge Co., the others being at the Plymouth No. 2 and Plymouth No. 5 collieries. These outfits have been remarkably successful in burning the smallest sizes of anthracite coal, usually the poorest grade mined for which there is no outside market.

The Baldwin Locomotive Works, which recently ordered twenty-six 125 horsepower "Hornsby-Akroyd" oil engines, has just placed an order for six additional of the same size, or a total of 32 engines, some of which will be coupled together and run direct connected to electric generator, making 250 horsepower units. As this aggregates 4,000 horsepower, it is pronounced the largest oil engine installation ever made. The engines will run on crude oil. They are supplied by the De La Vergne Machine Co., New York.

The C. O. Bartlett & Snow Co., Cleveland, reports the following recent sales: Omaha Paint, Pottery & Tile Co., Omaha, Neb., Style "F" dryer for drying coal, also complete outfit for manufacturing paint. J. Shallcross & Son, Coatesville, Pa., Triumph steam dryer. Iola Portland Cement Co., Dallas, Tex., elevating machinery: United Iron Works Co., Springfield, Mo., Triumph steam dryer; New castle Portland Cement Co., New Castle, Pa., conveying machinery; Coplay Cement Mfg. Co., Philadelphia, Pa. Large style "C" compartment direct heat dryer, for drying 30 tons of material an hour; Grasselli Chemical Co., for works at New Jersey, elevating machinery; Canadian Copper Co., Copper Cliff, Ont., No. 4 direct heat rotary dryer; Owen Sound Portland Cement Co., Shallow Lake, Ont., style "C" direct heat dryer for drying 100 tons of coal a day; War Eagle Coal Co., War Eagle, W. Va., coal handling machinery; Valentine Elcoro & Co., Mexico City, mining machinery; Louis Metal & Iron Co., Piqua, O., Triumph steam dryer.

The Hanna Engineering Works, 820 Elston avenue, Chicago, is experiencing a splendid demand for pneumatic riveters. Within the last few days, an order was received from the Dominion Steel Car Co., Montreal, Can., for fourteen machines, two of 102 inches reach by 15 inches gap; three, 60 x 18 inches; four, 30 inches by 18 inches; four, 25 by 18 inches, and one, 18 x 12 inches. Four machines, 102 x 18 inches are also under course of construction for shipment to the Barney & Smith Car Co., Dayton, O.; other orders lately received are as follows: Allis-Chalmers Co., one; Chicago Railway Equipment Co., two; Toledo-Massillon Bridge Co., Toledo, four; Western Steel Car and Foundry Co., Hegewisch, Ill., two; American Steel Foundries' Co., Hammond, Ind., two; Griggs-Seaburg Ordnance Corporation, Sharon, Pa., one; American Bridge Co., Chicago, one; (the tenth order for the Chicago plant); Pennsylvania Steel Co., Steelton, Pa., four; Riter Conley Co., Pittsburg, one; Penn Bridge Co., Beaver Falls, Pa., one. Sales of the Hanna pneumatic sand sifter for foundry use are also numerous, fifty orders having been taken in the past month.

Concrete Publishing Plant.—The McGraw Publishing Co., publisher of the *Engineering Record, Street Railway Journal, Electrical World,* and other periodicals, have just placed a contract with Frank B. Gilbreth, New York, for the erection of a new building to be erected at 29th street between Seventh and Eighth Avenues. The plot is 126.4 feet long and 98.9 deep. It is planned to make this structure ten stories high with the lower four floors devoted to printing machinery, the top floor to an engraving establishment and the remaining floors to offices. It is proposed to construct this building entirely of reinforced concrete. The building is designed by Professor Wm. H. Burr and Messrs. Radcliffe & Kelley.